EMERGING TRENDS TO DEAL WITH THE CHALLENGES OF WORK LIFE BALANCE OF EMPLOYEES IN THE SELECTED ORGANIZATIONS FROM IT, ELECTRONICS AND AUTOMOBILE SECTOR IN INDIAN CONTEXT

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ABSTRACT

Due to Changing labor market and the changing nature of work, work-life balance is now at the top of the agenda for government and Private Bodies. Work life balance can lead indirectly to productivity gains through increased retention and helps the organizations to respond to customer needs more effectively. In any business and industrial activities, it is of utmost importance to have well trained, well groomed and emotionally balanced workers available to take up employment challenges. This highlights the need among the companies to pay adequate attention to the work life balance of the workers. Globalization makes the people working across countries; As a result, concept of fixed working hours is vanishing. Instead of just 7 or 8 a day, people are working as much as 12-16 hours every day in office. Therefore, tension and work related pressure, responsibilities at family makes an individual difficult to find balance between work and personal life. Professional working in BPO industry, top executives, doctors, nurses, bank Employees and IT professionals are the few examples that are facing the burden of work life imbalance constantly. Today organizations are setting up policies for maintaining a work life balance. They are introducing innovative methods to keep their employees happy and satisfied, as it makes office a better place to work and also impact positively on productivity.

Through this paper, the researcher wants to find out different trends and strategies used by some renowned industries to tackle the problem of work life balance. Researcher selected some of the famous organizations from different industry in Indian Context.

Key Words: Globalization, Productivity, Work Life Balance

Objectives

- To study various factors affecting work life balance of employees.

- To study emerging trends to deal with work life balance.

Components of work life balance

Work: Work is physical or mental efforts put by us to do/produce or accomplish something. It is generally referred as a job or activity that you do regularly especially in order to earn money.

Life: Life is broadly related to certain aspects like ambition, acquisition, achievements etc., which may promote stress while part of life should be taken as stress releasing agent also.

Work-Life Balance: Work life balance is about the interaction between paid work and other activities, including unpaid work in families and the community, leisure, and personal development

Meaning

Work life balance is used to describe the equilibrium between responsibilities at work and responsibilities outside paid work; having a work life balance means that this equilibrium is in the right position for the individual concerned. For some people it means spending more time in paid work and less time at home, while for others it means ensuring that paid work does not infringe on time needed for other responsibilities. It is about managing our work commitments with career goals, and our responsibilities at home and the wider community. Work life and personal life are inter-connected and interdependent. Now many organizations come up with new schemes, procedures and policies to deal with work life imbalance problem.

I. INTRODUCTION

A balance between work and life is supposed to exist when there is a proper functioning at work and at home with a minimum of role conflict. Therefore, the incompatibility between the demands from the work and non work domain give rise to conflict and consequently, people experience a lack of WLB. There is confirmation of the fact that people entering the workforce today are laying emphasis on the importance of WLB more than their predecessors.

In spite of this, the extent to which this balance is being achieved is far less than what is desired. In fact, the researchers bring to mind that graduates are being drawn into situations where they have to work for progressively longer hours and so experience an increasingly unsatisfactory balance between home life and work life. .

Work life and personal life are the two sides of the same coin. People have to make tough choices even when their work and personal life is nowhere close to equilibrium. There are different personal and professional factors affecting work life balance like,

There are various personal and professional factors affecting work life balance of employees

II. PERSONAL FACTORS

age, education, Marital status, family background & support, spouse support, elder dependency, child responsibility, multiple roles etc. Research shows that the women between the age group 25 to 50 face the problem of work life balance. Increased rate of literacy and women empowerment open the doors of employment for women. So the traditional role of women i.e home maker is added with job opportunity.

Research shows married employees are more likely to face work life balance problem. The transactional shift in the trend of society ie moving from joint family structure to nuclear family also cause work life imbalance problem. The employees has to play multiple roles ie as a husbands/wife, as a parent, as a employee, as a collogue, as a child for their old parents which indirectly create pressure. Because of globalization, increased number of Multinational companies and tough competition in the market, the work life is not easy. The job is not constrained with fixed working hours. Because of mobiles employees are accessible anytime, anywhere in the world. Companies providing, mobiles, computers, laptops, tablets, free internet connection to their employees for doing work. So indirectly companies stolen the employee's time which was reserved for the family.

III. PROFESSIONAL FACTORS

working conditions- tight deadlines, extensive travelling and long and/or odd working hours,, organizational culture, organizational policies, working hours, work load distribution, amount and frequency of overtime required, inflexible work schedules, unsupportive supervisior,job resources, colleague support, unfair critics, career orientation, career stage etc. are some work related or professional factors affecting work life balance of the employees.

IV. IMPORTANCE OF WORK LIFE BALANCE IN TODAY'S SCENARIO

From the prospective of employees, WLB is the maintenance of a balance between responsibilities at work and at home. Work life initiatives are those strategies, policies, programs and practices initiated and maintained in workplaces to address flexibility, quality of work life and work family conflict. In other words, WLB is about people having a measure of control over when, where and how they work. Strategies of WLB in organizations include policies covering flexible work arrangements, child and dependent care and family and parental leave. Several studies have shown the benefits associated with the provision of work life in organizations.

Though work-life balance was initially construed as the concern for working mothers, it has been recognized as a vital issue for all classes of employees (Bird, 2006). Despite increased interest in work-life issues, the organizational philosophy towards work-life concerns is varied. Many organizations still see them as individual not organizational concerns. Some organizations resonate the sentiment 'work is work and family is family—and basically, the two do not mix' (Bailyn et *al,* 1997).Other organizations view work and personal life as competing priorities in a zero-sum game, in which a gain in one area means a loss in the other (Friedman et *al,* 2000).

Hence, it would be interesting to study organizational perspectives on work-life balance. Work-life balance is about creating and maintaining supportive and healthy work environments, which will enable employees to have balance between work and personal responsibilities and thus strengthen employee loyalty and productivity.

Today's workers have many competing responsibilities such as work, children, housework, volunteering, spouse and elderly parent care and this places stress on individuals, families and the communities in which they reside. Work-life conflict is a serious problem that impacts workers, their employers and communities. It seems that

this problem is increasing over time due to high female labour force participation rates, increasing numbers of single parent families, the predominance of the dual-earner family and emerging trends such as elder care. It is further exasperated with globalization, an aging population, and historically low unemployment.

V. EFFECTS OF POOR WORK LIFE BALANCE ON THE ORGANIZATION

- Workers Punctuality, Teamwork, Customer service, work supervision responsibility, group behavior, peer interaction and leadership initiative by workers are reduced due to Lowered self-worth and morale in workers due to conflict in work life balance.
- Creativity, new job-expertise learning and innovation of worker is grossly undermined due to lowering of work related enthusiasm among workers.
- Workers having problem balancing work roles and family roles set bad standard in the company work setting and often upset the friendly work ambience.
- Workers problems get reflected negatively on company turnover, operating profit and balance sheet.
- Substantial increase in the cases of workers being absent on the job and in extreme cases leaving.

VI. WORK-LIFE BALANCE IN SELECTED COMPANIES

Poor work life balance create stress, tension in the employees. This not only affects the efficiency but also the productivity of the company. That is the reason why company is paying more attention towards work life balance. Following are the examples of some selected companies along with their strategies to deal with the problem of work life imbalance.

5.1 Ibm

Maintaining the essential work life balance has become a business essential, and is mostly not very easy to achieve. IBM introducing employee-friendly Policies. Some of the policies like flexible work arrangements or child care services; which will be having a positive impact on employee productivity & retention, and therefore are looked upon as a business imperative. Various supporting programs like Influenza Vaccination or Emotional Well-being programs were successfully arranged by the IBM.

IBM is well known in the industry for its work life balance, and for the nineteenth year in succession, has featured in the 'best companies' list of various magazines, including Working Mother

5.2 Microsoft

As employees are most valued asset, Microsoft provides flexible programs, resources, and tools to help them to create their own balance between their work and their personal lives. These resources range from an extensive resource and referral service to generous maternity and paternity leave policies and flexible work arrangements—all as a means to help employees attain this important balance. Microsoft realizes that happy, healthy employees make Microsoft a better place to work and a more productive company.

The Microsoft Work-Life programs include:

- Flexible work arrangements

- Grocery service
- Adoption assistance
- Backup child-care program
- Child-care assistance
- Commuting programs and public transportation assistance
- Dinners-to-go program
- Disease management programs
- Dry cleaning and laundry service
- Employee affinity groups
- Employee development courses
- Employer-sponsored discount program
- Ergonomics program
- Financial planning
- Fitness benefits
- Legal assistance
- Long-term care for extended family members
- Maternity and paternity leave program
- New mothers' rooms
- On-campus convenience shopping
- Parenting resources and seminars
- Resources and referrals for counseling and education
- Schools Out! programs
- Smoking cessation program
- Tuition assistance program
- Weight management program

In addition to providing these programs, Microsoft is committed to creating a healthy, flexible, and productive work environment that allows employees to engage in a challenging career and balance their Work Life needs.

5.3 Tata Co.

TATA is having very good organizational culture. Their main focus is to foster a productive work environment within the working day. If employees need to work outside, then this should be facilitated through the internet and mobile phones.

Giving more opportunities for people to work from home if they want to and make work more flexible is one of the strategy used by TATA Co.. So it may not be necessary that the entire workforce of TCS comes to office every morning at the same time. Such an approach will also cut down on commuting time and enable employees to spend more time with their families. Work-sharing is another way in which couples, or any two people, share the work. All this would not mean less productivity but result in happier employees.

At TCS some programs are arranged for the employees' families by creating opportunities for them to understand what is happening in the company. This gives them a sense of pride in the work that the spouse or parent is doing and makes them feel less neglected.

5.2. Sony Corporation

Maintaining work environments that furnish to different lifestyles and enable employees to fully express their abilities, skill, knowledge Sony has introduced support systems and versatile working styles, among others, to emphasize the importance of achieving an optimal work-life balance. Sony Corporation always follows the laws and customs of the countries and regions in which it operates, but also offers versatile working styles designed to help its employees achieve an effective work-life balance.

In Japan, Sony Corporation has introduced the **"flex-time system".** Sony employees have used a high percentage of their allotment of annual paid holidays

VI. CHILD CARE AND NURSING CARE

Sony offers a special accumulated leave system aimed at employees undertaking child care or nursing care and a child care paid leave system that can be used in combination with child care leave and provides up to 20 days' leave for employees who have given birth. A significant number of employees take advantage of these leave systems. In addition, Sony offers an "At-Home Work System" and the "use of annual paid holiday on an hourly basis" for child care or nursing care.

6.1 Seminars and forums to create awareness regarding work life balance

Sony not only tries to establish work-life balance systems, but also promotes measures to assist employees in combining child care and work with the advancement of their careers. More specifically, Sony holds forums and seminars for employees featuring messages of support for work life balance initiatives from senior management. A notable example is the "Working Parent Forum", which includes a session during which female and male employees with experience in combining work and child rearing share their personal experiences and an event that provides participants with the opportunity to exchange information. Other such events include "Fathers' Forum", which provides an opportunity for male employees to consider how they can participate in child rearing and features a panel discussion by male employees who have experience in this area; and "Working Mothers' Meeting", in which female employees who have returned to work can attend a lecture from guest speakers, participate in panel discussions and exchange information with other participants.

SONY also organizes tour for employees' families at different places.

Sony received the HRM Work life Harmony Award from HR Media.

6.2 Tvs Motors

Work Environment - They offer an open environment, professional freedom and responsibilities to excel and grow with the organization, allowing individuals to have the perfect

work-life balance. They are having the tagline of '**Work Smart, Play Hard'**. Their environment is a mix of formal and friendly, which allows professional development with the highest regard for individual and collective contribution towards organization's growth. TVS is known for it's flexible work conditions, amity across the organization, enthusiasm towards work and inclusive decision making.

6.3 General Electric

General Electric encourages their employees to meet their work commitments while balancing their own life responsibilities.

To support this balance, flexible work arrangements are an integral part of the way we conduct business. The Company also offers many programs and resources to support employees including financial management, family counseling and more.

6.4 Accenture

Accenture offers various option to their employees for work life balance.Here are some of the various flexible work arrangements offered at Accenture:

Flex time schedule

Part-time arrangement

Job-sharing arrangement

Telecommuting/home working

Fly-backs

VIII. CLIENT-SITE FLEXIBLE WORK ARRANGEMENTS

Help our consulting professionals, who spend much of their time working at client sites away from their home location, balance work and personal life. These flexible working options help meet their needs, while still meeting the needs of our clients:

7.1 Full weekend at home

Arrive at the project midday on Monday and stop client work early Friday afternoon, thereby providing for a full weekend at home.

Work the same number of hours as a full work week, but compress the completion into a shorter time frame.

7.2 Extended weekends in home location

Work a five-day work week: four days at the project site and the fifth day in the home office or approved alternate location, with either three or four nights at the out-of-town location.

7.3 Extended client/home location

Work an extended period of time at a client site followed by an extended number of days at the home office or approved alternate location, without altering the standard work week requirement and just changing time of hours worked.

VIII. GENERAL STRATEGIES USED BY THE INDUSTRIES TO DEAL WITH THE PROBLEM OF WORK LIFE BALANCE OF EMPLOYEES.

Changed scenario, tough completion make organizations to understand the pressures and challenges faced by employees. It's very difficult for employees who trying to balance work with personal interests and responsibilities..

When it comes to work/life balance, a "one-size-fits-all" approach simply won't applicable. Their programs are designed to recognize that not all employees are the same and that employees' needs may change over time.

Following are the trends used by the organizations for work life balance

Flexible work arrangements (e.g., telecommuting, flex-time, job-share, reduced or compressed workweek) flexi time is an arrangement where employees work a full day but they can vary their working hours.These arrangements are usually established with specific guidelines so that a "core" working day exists.

- Eg-7.00 a.m-3.30p.m Monday-Friday (half hour lunch)
- 9.00 a.m-6.00p.m Monday-Friday (one hour lunch)

Compressed Work Week: This option allows employees to work a 40-hours week in less than the traditional 8-hour day, 5-day work week. For e.g.- An employee works four 10-hours/day

8.1 Job Sharing: Job sharing is a work arrangement in which two people work part time and share the responsibilities of one full time job. For e.g.-Half or spilt days, e.g.-one employee works in the morning and the other employee in the afternoon. Half or spilt weeks.

Telecommuting: It is a work arrangement in which an employee carries out all or some of the duties of the job at home or another alternate work location.

For e.g.An employee works in the office Monday-Thursday and telecommutes from a home office on Friday.

An employee works in the office 6.30a.m. to 12.30 p.m.and telecommutes from a home office for two hours each afternoon.

Reduced time/Part time:A part time working arrangement means working fewer than 40 hours per week. Salary is prorated for the actual number of hours worked.

Eligibility for benefits, vacation and sick leave may be affected.

For e.g.- An employee on a 50% time appointment works Monday-Friday from 8.00 am – 12 pm

Leaves and Sabbaticals: Leaves and Sabbaticals are authorized periods of time away from work without loss of employment rights. Paid or unpaid leaves are usually granted for family, health care, education or leisure reasons.Sabbaticals are usually paid(or partly funded) and occur on a regular basis in addition to vacation time.

Summer hours – employees work extra time Monday-Thursday and head out early on Fridays

On-site full-time childcare plus backup care, school's out and summer programs

On-site seminars, fairs and workshops on such topics as stress, nutrition and safety.

Company store and cafeteria

On-site dry cleaning services

Fitness facilities including personal training and group exercise classes, plus discount memberships on a network of commercial fitness centers

Access to free counseling services on a variety of personal and work/life issues

Concierge Services to assist you when making arrangements for: restaurant reservations, theatre tickets, personal travel arrangements, automotive services, pet care and cleaning services

Paid personal days, vacation days, holidays and sick days

Tuition reimbursement.

Adoption assistance

Fly-backs: Help support work/life balance for employees with significant travel, often the case for consulting professionals. offer employees to fly-backs to their home location, the option to fly someone to their project site, and the option to fly to an alternate location in place of a trip home.

Life Works Employee Assistance Program: Get confidential support for challenging issues such as parenting, end-of-life issues, caregiver and community support.

Backup Dependent Care: Locate care givers for your children, spouse or relative when regular arrangements won't work, with rates subsidized by Accenture.

Eldercare resource program: Meet with a trained professional who can assess conditions and provide guidance, support and coordination.

Nursing mother's program: New moms can get educational resources about nursing, as well as a $50 breast pump subsidy.

New Parents Toolkit: Expecting or adopting a child? We have a toolkit for information on applicable policies, guidelines and work/life resources.

Adoption Assistance: Adopting a child? Accenture employees receive up to $5,000 per child per family to help pay medical costs, agency and legal fees.

IX. CONCLUSION

Employees are valuable assets for any organization. With the advent of globalization, new technology, employees has to work under pressure and to compete with various organizations. The organization also has to go for people engagement to reduce the stress level. The work is not restricted with time and space. Companies understand the need of work life balance. Accordingly many companies come with innovative strategies to provide work life balance. The strategies like flexible work arrangement, work from home, job sharing, maternity/paternity leaves, counseling programs, medical assistance etc.

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EFFECT OF INJECTION PRESSURE ON TENSILE PROPERTIES OF POLYPROPYLENE-MATRIX COMPOSITES REINFORCED BY MICA

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ABSTRACT

Polypropylene matrix composite reinforced with particulate materials are gaining researchers' attraction because of their wide industrial applications and low cost. Variation in the mechanical properties of the PPM composite (polyropylene10wt%Mica) with injection pressure is investigated in this paper. Standard specimens of the composites are prepared by twin screw extrusion at various injection pressures.

Keywords: Injection pressure, Polymer-matrix composites (PMCs), Mechanical properties.

I. INTRODUCTION

The mechanical properties of a material are directly related to the response of the material when it is subjected to mechanical stresses. Since characteristic phenomena or behavior occur at discrete engineering stress and strain levels, the basic mechanical properties of a material are found by determining the stresses and corresponding strains for various critical occurrences.

A lot of information about a material's mechanical behavior can be determined by conducting a simple tensile test in which a standard specimen of uniform cross-section is pulled until it ruptures or fractures into separate pieces. The original cross sectional area and gage length are measured prior to conducting the test and the applied load and gage displacement are continuously measured throughout the test using computer-based data acquisition. Based on the initial geometry of the sample, the engineering stress-strain behavior (stress-strain curve) can be easily generated from which numerous mechanical properties, such as yield strength and elastic modulus, can be determined.

Universal testing machines, which can be hydraulic or screw based, are generally utilized to apply the test displacement/load in a continuously increasing (ramp) manner according to ASTM specifications.

The basic idea of a tensile test is to place a sample of a material between two fixtures called “grips” which clamp the material. The material has known dimensions, like length and cross-sectional area. We then begin to apply weight to the material gripped at one end while the other end is fixed. We keep increasing the weight (often called the load or force) while at the same time measuring the change in length of the sample.

Sreenath et al [1] worked on the effect of concentration of mica on the properties of polyester while Akinci et al [2] studied the effect of concentration of graphite flakes on the properties of PPM composites. Mubasher Ali Khan [3] studied the effect of different aditives on some mechanical properties of polypropylene.

II. EXPERIMENTATION AND OBSERVATIONS

Standard specimens (Fig.1) of PPM composites are used to do tensile test on UTM to get displacement verses load data. Displacement and load values are divided by cross-sectional area and length of specimen respectively to obtain the corresponding strain and stress values.

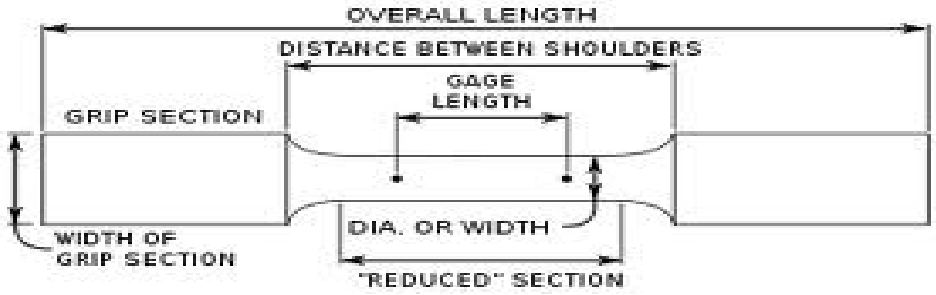

Figure 1: PPM specimen

Table1. Observation And Result Table For Ppm4:

DISPLACEMENT (mm)	LOAD (KN)	STRAIN	STRESS(N/mm^2)
0	0	0	0
0	0	0	0
0.16	0.1	0.002992	0.002449
0.33	0.21	0.006172	0.005142
0.49	0.3	0.009164	0.007346
0.49	0.38	0.009164	0.009305
0.83	0.44	0.015523	0.010774
0.99	0.56	0.018515	0.013712
1.16	0.6	0.021694	0.014691
1.32	0.64	0.024687	0.015671
1.32	0.67	0.024687	0.016405
1.49	0.69	0.027866	0.016895
1.82	0.72	0.034038	0.01763
1.82	0.74	0.034038	0.018119
1.99	0.76	0.037217	0.018609
2.15	0.78	0.040209	0.019099
2.32	0.8	0.043389	0.019589
2.49	0.81	0.046568	0.019833
2.49	0.82	0.046568	0.020078
2.82	0.83	0.05274	0.020323
2.82	0.46	0.05274	0.011263
2.82	0.46	0.05274	0.011263
2.83	0	0.052927	0

Table2: Observation and Result Table for Ppm5: **Table3: Observation and Result Table for Ppm6:**

DISPLACEMENT (mm)	LOAD (KN)	STRAIN(mm)	STRESS(N/mm²)
0	0	0	0
0	0	0	0
0.16	0.07	0.002929	0.001597
0.33	0.14	0.006041	0.003194
0.49	0.22	0.008969	0.005019
0.49	0.28	0.008969	0.006388
0.66	0.33	0.012081	0.007529
0.83	0.38	0.015193	0.00867
0.99	0.43	0.018122	0.009811
1.16	0.48	0.021234	0.010951
1.32	0.52	0.024163	0.011864
1.49	0.56	0.027274	0.012777
1.66	0.59	0.030386	0.013461
1.66	0.63	0.030386	0.014374
1.82	0.66	0.033315	0.015058
1.99	0.69	0.036427	0.015743
2.15	0.71	0.039356	0.016199
2.32	0.74	0.042468	0.016883
2.32	0.77	0.042468	0.017568
2.49	0.79	0.045579	0.018024
2.65	0.81	0.048508	0.01848
2.82	0.83	0.05162	0.018937
2.98	0.85	0.054549	0.019393
2.98	0.86	0.054549	0.019621
3.32	0.88	0.060772	0.020078
3.48	0.94	0.063701	0.021446
3.65	0.95	0.066813	0.021675
3.65	0.26	0.066813	0.005932
3.65	0.26	0.066813	0.005932
3.66	0	0.066996	0

DISPLACEMENT (mm)	LOAD (KN)	STRAIN	STRESS(N/mm²)
0	0	0	0
0	0	0	0
0.16	0.07	0.000727	0.001739
0.33	0.15	0.0015	0.003726
0.49	0.22	0.002227	0.005464
0.66	0.3	0.003	0.007452
0.83	0.36	0.003773	0.008942
0.83	0.43	0.003773	0.010681
0.99	0.48	0.0045	0.011923
1.16	0.53	0.005273	0.013164
1.32	0.58	0.006	0.014406
1.49	0.62	0.006773	0.0154
1.66	0.66	0.007545	0.016393
1.82	0.7	0.008273	0.017387
1.99	0.74	0.009045	0.018381
1.99	0.78	0.009045	0.019374
2.15	0.81	0.009773	0.020119
2.32	0.84	0.010545	0.020864
2.49	0.87	0.011318	0.02161
2.65	0.9	0.012045	0.022355
2.65	0.92	0.012045	0.022851
2.82	0.95	0.012818	0.023597
2.98	0.97	0.013545	0.024093
3.15	0.99	0.014318	0.02459
3.32	1.01	0.015091	0.025087
3.48	1.03	0.015818	0.025584
3.65	1.04	0.016591	0.025832
3.81	1.06	0.017318	0.026329
3.81	1.07	0.017318	0.026577
3.98	1.09	0.018091	0.027074
4.15	1.1	0.018864	0.027322
4.31	1.11	0.019591	0.027571
4.48	1.12	0.020364	0.027819
4.48	1.12	0.020364	0.027819
4.64	0.42	0.021091	0.010432
4.64	0.42	0.021091	0.010432
4.65	0	0.021136	0

III. RESULT AND DISCUSSION

Stress strain curves are drawn for differernt composites using the above data on Microsoft office excel.

3.1 Stress – Strain Curves For Different Composites

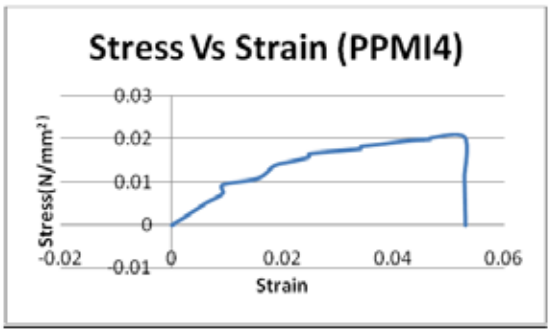

Figure 2: Stress-Strain Curvefor PPM4

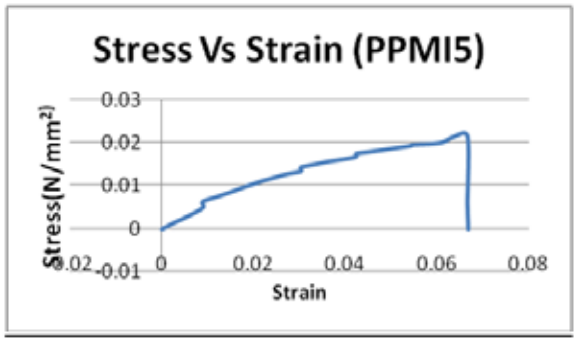

Figure 3: Stress-Strain Curve For PPM5

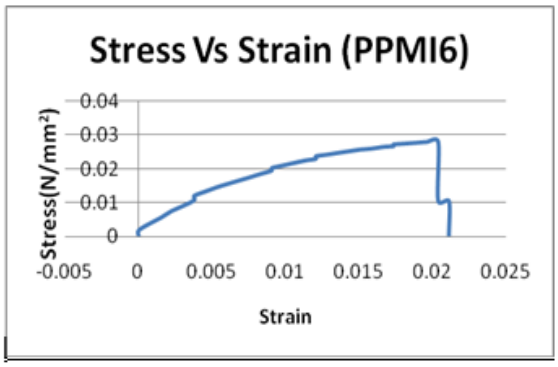

Figure 4: : Stress-strain curve for PPM6

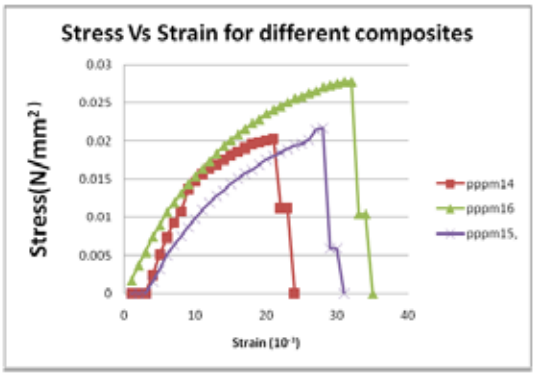

Figure 5: Stress-strain curve for PPM at different pressures

Table4: Result Table

Specimen	PPM4	PPM5	PPM6
Load at Peak (KN)	0.83	0.95	1.12
Load at Break (KN)	0.46	0.26	0.42
Elongation at Peak	2.82	3.65	4.48
Elongation at Break	2.82	3.65	4.64
Tensile Strength at Peak (KN/mm^2)	0.02	0.02	0.03
Tensile Strength at Break (KN/mm^2)	0.01	0.01	0.01
% Elongation at Peak	5.27	6.68	8.83
% Elongation at Break	5.27	6.68	9.15

IV. CONCLUSION

Toughness is the property of a material which enables it to absorb energy without fracture. It is desirable in materials which are subjected to cyclic or shock loading. It is represented by the area under stress strain curve up to fracture.

It is obvious from the figure 4 that the area under the curve increases with increase in injection pressure. It means that the toughness of PPM composite increases with increase in injection pressure.

The data in the result table4 reveals the fact that by increasing injection pressure, tensile strength of the composite at peak initially remains constant but after a high pressure value (like 60 MPa here), it increases. The tensile strength at break remains constant i.e. there is no significant effect of injection pressure on ultimate tensile strength is observed.

But the strain at peak as well as at break continuously increases with increase in injection pressure which implies that the ductility of the composite increases with increase in injection pressure.

In a nut shell it can be concluded that mechanical properties as well as wear resistance of polypropylene-mica composite can be improved by increasing injection pressure.

V. ACKNOWLEDGMENTS

We acknowledge the efforts and full cooperation of Prof. Raisuddin Ansari, Dept. of Mech. Engg. AMU, Aligarh for conducting the tensile test on UTM.

VI. NOMENCLATURE

PPM: Polypropylene-Mica composite
PPM4: Polypropylene-Mica composite at 40 MPa injection pressure.
PPM5: Polypropylene-Mica composite at 50 MPa injection pressure.
PPM6: Polypropylene-Mica composite at 60 MPa injection pressure.

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ABNORMAL PSYCHOLOGY AND MALADAPTIVE BEHAVIOUR EXISTS EVERYWHERE, DOES IT INFLUENCE SOCIETY?

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ABSTRACT

Around the world about 10-15% of the people are suffering from psychological disorder. Medically, the stage of abnormal psychology in our country exists only in the early stage which needs remedy and treatment. In this aspect, throughout the world many trusts and voluntary organizations came forward to eradicate this decease but not yet have functioned properly. The rate of affected people is increasing day by day in all countries including developed ones. It has been noted that the certain people were isolated from the society only for the reason of abnormal behaviour. Moreover due to lack of awareness and treatment the decease is in higher rate in rural areas comparedwith urban areas, the physical behaviour of the people not only affects the individual but also the society who depends and extend to his family circle also. Further this abnormal behaviour leads to negative and evil thoughts of an individual. Basically the origin of this effect starts from the background of poverty, hereditary, stress, frustration and disasters. the mentally disordered by birth, physicallyhandicapped and inferiority complex oriented people are all grouped under abnormal psychology they behave differently as per the direction of their minds in different situations.

Keywords: Affective Disorders, Anxiety Disorders, Eating Disorders, Maladaptive Behaviour.

I. INTRODUCTION

A good cause gets affected by the people who suffer from abnormal psychology. Abnormal psychology is a kind of behaviour and not a disease. If we can recover those people by proper counselling and guidance then why such a problem exists in the humanity? .In this busy world all are running out of time and we do not 'have enough time to care about oneself & the real problem starts. There are only a few NGO's, Social service centres, MSW, Counsellors taking care of these people. So in this regard in our paper a study has been taken on 284 engineering college students (both genders) and the influence of abnormal psychology on them. We have considered anxiety disorder, affective disorder and eating disorder as 3 major criteria's. From our study the shocking result what we come to know is that in the last 5 years there is a gradual increase in percentage of people who have been affected from abnormal psychology. The previous works have been made with a small

group and the concentration on the students was comparatively lower than the other groups. So we have planned to check out the age group of 17-22 with gender difference to show the influence level in the society. It is found that irrespective of age groups, depression and disorders are the two aspects of abnormal psychology.

II. CAUSE OF ABNORMAL BEHAVIOUR.

- Maladaptive behaviour
- Anxiety disorders
- Affective disorders
- Eating disorders

  Normal – Regular pattern of behaviour.

  Abnormal – differ from regular pattern- To overcome abnormal behaviour.
- Positive attitude towards oneself.
- Growth, development, and self-actualization.
- Integration.
- Autonomy
- Accurate perception of reality.
- Environmental mastery to understand.

III. MALADAPTIVE BEHAVIOUR

The type of behaviour that inhibits a person's ability to adjust to particular situations is referred to as maladaptive behaviour. It is often used to reduce one's anxiety, but the result what we obtain is dysfunctional and non-productive. For example, we may avoid situations as we have an unrealistic fear which initially reduces our anxiety, but it is non-productive in alleviating the actual problem in the long term. Some of the common maladaptive behaviours are discussed below. They are classified here as "dysfunctional" as they tend to provide only short-term relief from anxiety. They are non-productive in relieving from the actual problems in the long run and may, in fact, serve as reinforces of the underlying problem. The behaviour is abnormal, maladaptive, and personally disruptive.

3.1 Avoidance

For many people, the symptoms of panic disorder often trigger an array of avoidant behavior. This can result in agoraphobia; a common complication of PD. Agoraphobia is characterized by anxiety in situations where the sufferer perceives certain environments as dangerous or uncomfortable, often due to crowdedness. Avoidance behavior often multiplies rapidly once this agoraphobia takes root.

3.2 Substance Abuse

People with anxiety disorders, including panic disorder and agoraphobia, consume alcohol or other drugs in order to get rid fear and anxiety. Some studies prove that people with anxiety disorders are likely to have alcohol or other drugs three times than those without an anxiety disorder. Consumption of alcohol or other drugs

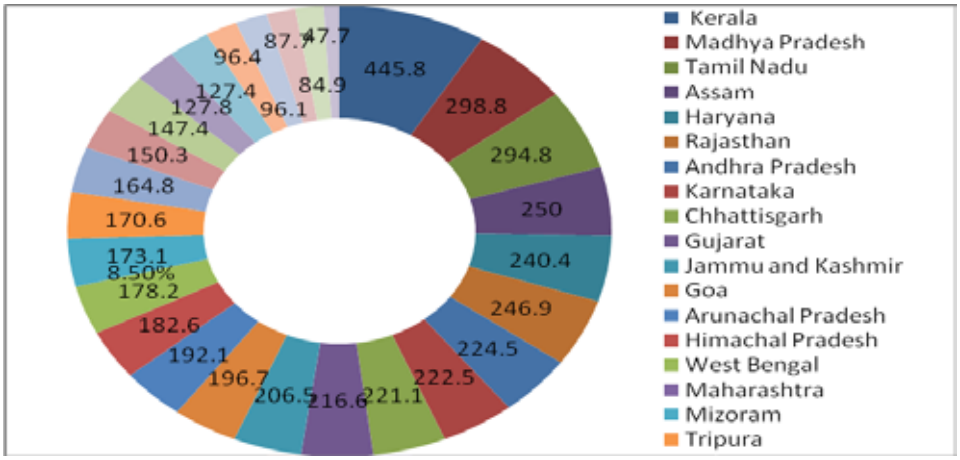
are considered as maladaptive behaviour as they provide only temporary solution and they create mental as well as physical illness. In the meantime maladaptive behaviour like consumption of alcohol may lead to addiction and the person will not be able to come out of it easily.

3.3. Withdrawing

In day to day activities we are facing both mental and physical challenges. Sometimes we struggle and succeed but sometimes we struggle and fail. When the latter occurs, we can try again, or we can withdraw from the conflict with a resigned acceptance of our situation. But when it comes to panic disorder or other anxiety disorders, withdrawing from that situation is not possible. It is a maladaptive behaviour because it means that we submit to the illness and become unable to meet the demands of life or current situation. In essence, withdrawing in this sense is like giving up. For many people, the recovery from this type of anxiety disorders is slow and often filled with setbacks.

3.4. Converting Anxiety to Anger

People who are having panic disorder, agoraphobia or another anxiety disorder often gets frustrated and as a result of which the anxiety gives rise to anger and create problem for themselves and their surrounding also. Each and every one of us have felt anger in one or the other situation and in the event of which we ventilate our anger to others. Anger is not a bad thing but it has to be exhibited in a controlled manner. If it is expressed in unhealthy way it may become a problem and will intensify our panic symptoms. The cognizable crime rate has been given for each state in India. Abnormal behaviour is the main cause of cognizable crime.



Cognizable Crime rate in India (2013)

Reference: Wikipedia

3.5 Triggers of Mental Health Problems

3.5.1 Physical Causes

Personality changes may arise due to each individual's own genetic make-up which can contribute to being at risk of developing a mental illness and traumas to the brain (via a form of head-injury) and in some cases 'trigger' symptoms of an illness. Consumption of alcohol and drugs and deficiencies of certain vitamins and minerals in an individual's diet can also play a part in creating an illness.

3.5.2 Social and Environmental Causes

The environment around which we grow up or we work play a vital part in triggering mental health problems. Persons living conditions along with family and community support networks can play a part along with employment status and work stresses. If a Person is living in poverty or in an isolated state, being unemployed or highly stressed in his/her work can also put pressure on an individual's mental health.

3.5.3 Psychological Factors

Mistreatment, bereavement or break in relationships (Divorce) will strongly influence an individual's mental and emotional state which can in turn have an influence on mental health.

3.5.4 Family History

Evidence proves that heredity can play some part in the development of some forms of mental illness. However it doesn't mean that if a family member has a mental illness due to diabetes or heart attack, the other members of family will experience the same condition with many physical health conditions

- Child abuse and isolation
- Family violence
- Severe or prolonged stress
- Unemployment and Work stress
- Major changes in life
- Fatal damage
- Birth trauma
- Viral infection
- Anxieties/ fears to certain things.
- No proper support from relationships

IV. SOCIETIES' RESPONSE TO THE MALADAPTIVE BEHAVIOUR

Researches were made in Behavioural Science to help improve the quality of life for individuals, couple, and families. This type of approach based on behavioural sciences is said to be Behaviour therapy. In Behaviour Therapy a major assumption is although the past is significant, the current environment is most important in affecting present behaviour. Behaviour Therapy focuses in treatment in order to improve self-control by expanding skills and abilities of an individual.

Behavioural therapy can be a useful treatment tool in an array of mental illnesses and symptoms of mental illness that involve maladaptive behaviour, such as:

- weight management
- substance abuse
- aggressive behaviour
- anger management
- eating disorders
- phobias
- development disabilities
- Community wide prevention methods
- anxiety disorders
- stress
- pain management
- sexual dysfunction
- children's social behaviours
- bipolar disorder
- Early Interventions
- Peer led Programs

4.1 Organic Disorders

Behaviour therapy is done to treat some of disorders like insomnia (sleeping disorders) and incontinence by changing or bringing some behavioural modification that might be contributing to these disorders. Behaviour is a learned response from the environment and can be unlearned by implementing proper methodologies. Behavioural therapy does not deal with the un-conscious motivations that may be behind the maladaptive behaviour rather but it simply teaches to change their behaviour.

4.2 Coping with Stress

From our childhood our life is filled with unwanted negative thoughts or emotions like anxiety, depression, fear and anger. Due to these negative thoughts we are unable to cope up with current life and we are facing difficulty in attaining our destiny. We are facing unhelpful behaviours such as insomnia, procrastination, anger outbursts and addictive or repetitive behaviours. You may just have difficulty coping with the stress of daily life. Behaviour Therapy can help us address these roadblocks in achieving success and happiness.

4.3 Treatment

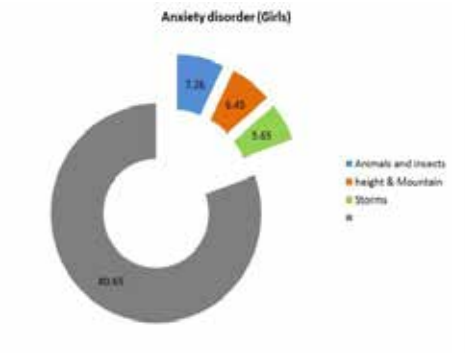
initially a positive working relationship will be created between the therapist and the patient and the sessions will be spent in explaining the basic tenets of behavioural therapy to the patient. An active role is given to the patient by making them involve in action- oriented activities and it discourages the overdependence on the therapist. Treatment is typically given in an outpatient setting and a positive interactive session is usually given. Treatment will be usually combined with other psychological interventions like medication.

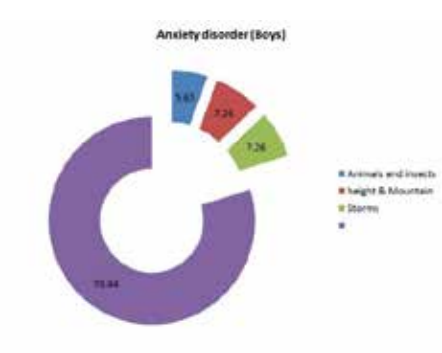
V. STUDY ON BEHAVIOUR

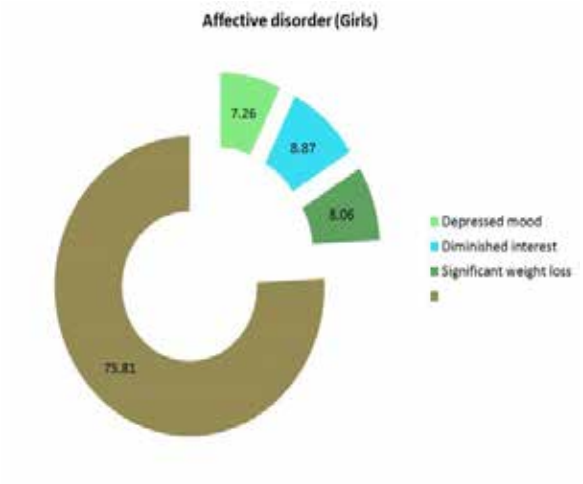
	Anxiety disorder	Boys	Girls	Tot Boys	Tot Girls
X1	Animals and insects	7	9	124	124

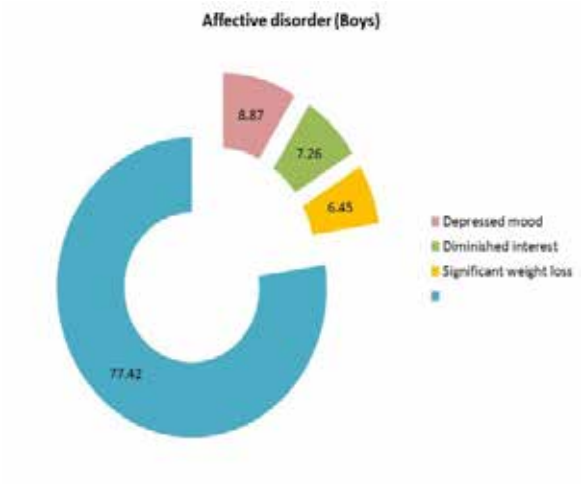
X2	height & Mountain	9	8	124	124
X3	Storms	9	7	124	124
X4	Water ,ocean, lake	10	9	124	124
X5	Blood	10	9	124	124
X6	Injury	9	7	124	124
X7	Airplane, Jet	8	7	124	124
X8	Elevators	8	8	124	124
X9	Giant wheel	9	9	124	124
X10	Enclosed room	10	10	124	124
X11	Chocking, crowd	10	11	124	124
X12	Vomiting	9	9	124	124
X13	Louder noise	9	8	124	124
X14	costumed character	9	9	124	124
	Affective disorder				
A1	Depressed mood	11	9	124	124
A2	Diminished interest	9	11	124	124
A3	Significant weight loss	8	10	124	124
A4	Insomnia	10	8	124	124
A5	Restlessness	8	9	124	124
A6	Fatigue	8	8	124	124
A7	Inappropriate gesture	9	8	124	124
A8	Indecisiveness	10	8	124	124
A9	Recurrent thought of death	10	11	124	124
	Eating disorder				
E1	Refused to maintain body weight	11	10	124	124
E2	Fear of becoming fat	9	9	124	124
E3	Don’t know the health condition	8	9	124	124
E4	hectic eating	10	9	124	124
E5	Distress thinking on food	11	8	124	124
E6	Appetite feeling	10	9	124	124
E7	Too hungry	8	11	124	124
E8	Allergic on Veg/Non veg.	9	8	124	124

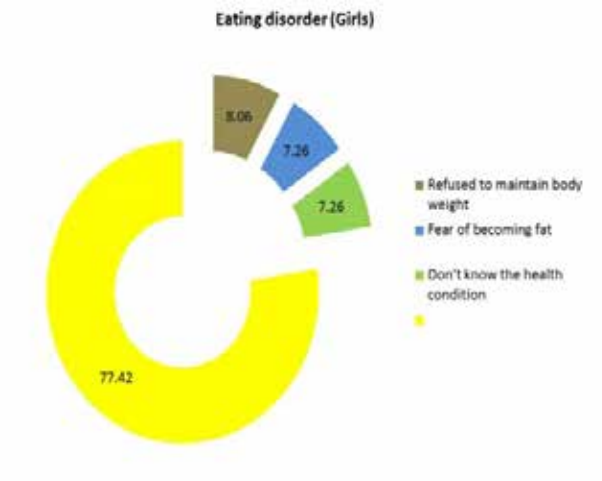
A study has been made for the anxiety, affective and eating disorders in an engineering college for about 284 students (Both Gender). The result is tabulated above

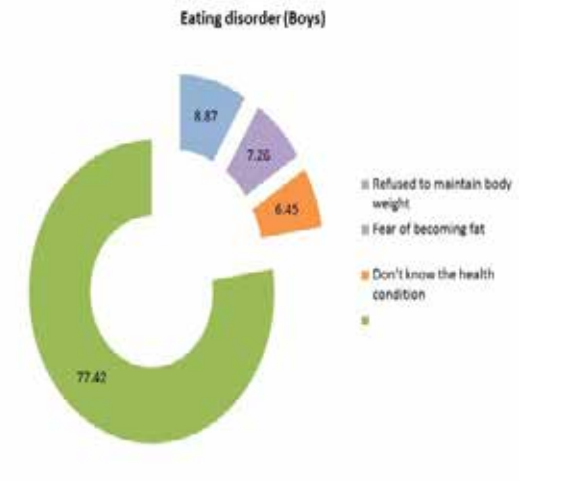












VI. CONCLUSION

The pitiable conditions of this physic behaviour much influence the society and its culture abruptly. Moreover, it will induce others laugh while seeing the affected people. Is it a fate or hereditary? The solution for this is to create a healthy environment in the living areas. The physic effect is defined as how they behave with others and how others response with the individual. In our study we impart certain points to the authority of health division.(i)to create awareness camp (ii)predict the affected people. In rural areas(iii) conducting periodical counsellingandmedication(iv) allot funds for rehibliton centre district vise for abnormal psychology.(v)periodic

EEG and meditation practice for the affected people (vi)even in university and colleges open exit/ entry student cell for counselling hectic behaviour.(vii)conducting periodical program in both rural and urban areas. The above studies which enlighten the shadow area in psychology to improve the national wealth and human values. The human resource is one of the best resources when compared with other resource .Hence the individual behaviour development is a vital element for every nation. It will fetch productivity, morale, goodwill, and long term performance in all aspects.To improve mental health, and a study of human behaviour is inevitable. By adopting proper counselling and basic treatment the needed people starts from big organization, educational institution and informal workers will create a pleasant situation to improve economic growth considerably.

All over the world the addicts, suicide and other crimes commitment value was in the increasing trend by poor prediction and attention of (abnormal psychology) mentally affected people. Hence, in this stage the non Government bodies must co-ordinate with World Health Organization and other voluntary organizations for assistance and adopt suitable policies for establishing rehabilitation centre especially for mentally retard/psychic patients.The medical counselling not alone solves the affected people. More over the recognition and identification are more important. .The primary health centers and district/state government hospitals to conduct eradication programs in all sectors. Such as all government officers, large/small organization, transport sector, agricultural workers and formal/informal workers in all categories.The prediction is better than cure is an evident fact. The negligence of care in the above abnormal psychology will lead to violence and other uncontrollable crimes in the country. Hence, the enforcement of law must be tightened and give hand to sufferers.

"I Will win may be not, immediately" but definitely.

"Buried the past and think of the future"

"Stay healthy and stay happy"

VII. ACKNOWLEDGEMENT

We would like to thank my beloved parents though living in astral plane watching always for the welfare of mine. This context was one of the major phenomena in medical science. Nobody saw the other side of the life. We would like to thank my friends circle those who are in pshycastic department and human psychology. We place our sincere thanks to professor in medical college and institution behavioural science. By the almighty of god "Beggar becomes prince and prince may become pauper". In the nut shell, the abnormal psychology plied a vital role in a science of behaviour. Finally we thank our relatives and subordinates for their cordial support. Our aim is to throw the stone in the sea whether, our searching is worthwhile or not. We do not know whether the scholars and readers have to decide.

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DESIGN AND PARAMETRIC ANALYSIS OF TRIANGULAR MICROSTRIP ANTENNA LOADED WITH DIELECTRIC SUPERSTRATE

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ABSTRACT

In this paper, the effect of a dielectric superstrate on the gain and resonant frequency of a triangular microstrip antenna has been studied. The proper choice of thickness of superstrate and superstrate layer result insignificant improvement in gain. The improvement in reflection coefficient is also shown. The results obtained shows a shift in resonant frequency by introducing the superstrate of suitable thickness and material.

Keywords: Antenna, Resonant Frequency, Triangular Microstip Antenna, Superstrate.

I. INTRODUCTION

The attractive features of mirostrip antennas [1] such as light weight, low profile, manufacturing ease and compatibility with integrated circuit technology have recently demanded greater investigation of their performance and applications. However mirostrip antennas have narrow bandwidth and can only operate effectively in vicinity of resonant frequency which limit its wider application. Large numbers of investigations have been conducted on triangular patch microstrip antenna which shows the remarkable advantages of equilateral triangular geometry[2].The dielectric superstrate loaded equilateral triangular patch antenna using spectral domain technique has been studied[3]. Dahele and Lee[4] concluded that if the side length of the triangular patch is replaced by its effective value while leaving the relative permittivity unchanged, good agreement between theory and experiment is obtained. Garg and Long[5] also arrived at the same results.

This paper represents the experimental and theoretical study of triangular microstirp patch antenna with dielectric superstrate and how loading are used to accurately estimate the effect of a superstrate on gain parameter and resonant frequencies. The computed results for different radome dimensions are compared with the experimental values.

II. THEORETICAL FORMULAS

As per the cavity model analysis by Helszajn[6], the general formula for the resonant frequencies of TM_{mn} modes obtained for triangular patch antenna can be given as

$$f_{mn} = \frac{2c}{3a\varepsilon^{1/2}}(m^2+mn+n^2)^{1/2} \qquad (1)$$

There are two suggestions for accounting for nonperfect magnetic wall effects. The sidelength *a* should be replaced by the effective value

$$a_e = a + h(\epsilon_r)^{-1/2} \quad (2)$$

BB[7] proposed that alongwith the effective value of a_e , effective value of ϵ_r should be replaced as

$$\epsilon_e = \frac{(\epsilon_r + 1)}{2} + \frac{(\epsilon_r - 1)}{2}\left(1 + \frac{12h}{a}\right)^{-1/2} \quad (3)$$

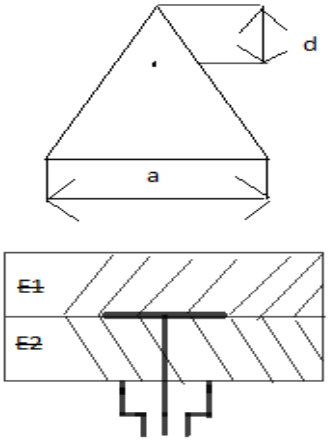


Fig. 1. Superstrate loaded triangular patch antenna

Although in the cavity modal of the equilateral triangular patch, the sidelength *a* will be replaced by its effective value a_e but ϵ_r should not be replaced ϵ_e.

2.1 Input Impedance of coaxial fed Antenna

The input impedance of coaxial fed antenna where the feed point is located at a distance *d* from vertex of antenna is given as

$$Z = R + jX = -j\omega\mu \sum_{n=0}^{\infty}\sum_{m=n}^{\infty} \frac{4\sqrt{3}hC_{mn}^{2}}{27a^2} * \begin{bmatrix} \cos\left(\frac{2\pi ld}{\sqrt{3}a}\right) j_0\left(\frac{\pi lw}{\sqrt{3}a}\right) \\ +\cos\left(\frac{2\pi md}{\sqrt{3}a}\right) j_0\left(\frac{\pi mw}{\sqrt{3}a}\right) \\ +\cos\left(\frac{2\pi nd}{\sqrt{3}a}\right) j_0\left(\frac{\pi nw}{\sqrt{3}a}\right) \end{bmatrix}^2 * \left[\frac{(\omega^2 - \omega_r^2)\mu_0\epsilon + j\delta_{eff}k^2}{(\omega^2 - \omega_r^2)^2\mu_0^2\epsilon^2 + \delta_{eff}^2 k^4}\right] \quad (4)$$

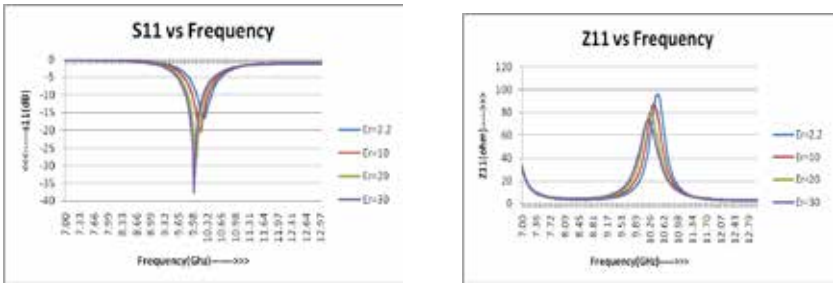
Where δ_{eff} is effective loss tangent .If the frequency is adjusted such that the loss of surface wave is negligible then it is given by

$$\delta_{eff} = \frac{P_r + P_d + P_c}{2\omega W_E} \quad (5)$$

Where P_r, P_d and P_c are the radiation, dielectric and copper losses respectively and $2W_E$ is energy stored in cavity.

III. RESULTS

(1) S_{11} Vs frequency **(2) Z_{11} Vs frequency**



(3) Gain

(i)

(ii)

(iii)

(vi)

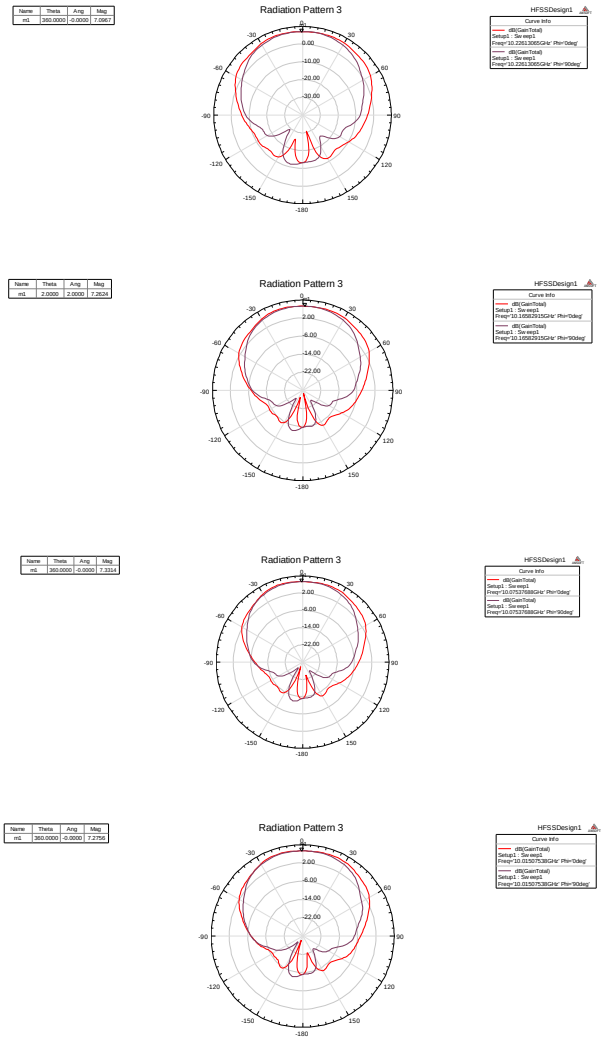


Figure 2: (i) $\epsilon_{r=2.2}$, (ii) $\epsilon_{r=10}$, (iii) $\epsilon_{r=20}$, (iv) $\epsilon_{r=30}$.

Dielectric constant of superstate	Frequency at dominant mode (GHz)	Impedance (ohm)	Gain (dB)
2.2	10.2261	47.9622	7.0967
10	10.1658	53.9147	7.2624
20	10.0754	52.3388	7.3314
30	10.0151	49.6417	7.2756

Table 1: Performance parameter of Triangular Patch Antenna

IV. CONCLUSION AND DISCUSSION

In conclusion the variation of the gain with superstrates of different dielectric constant have been shown. These results appear to informative during the implementation and design of the microstrip antenna. It is found that as the permittivity of material increases, compactness increases.

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OPTIMIZATION OF RESONANT FREQUENCY OF RECTANGULAR MICROSTRIP PATCH ANTENNA FOR X-BAND APPLICATIONS

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ABSTRACT

In this paper, application of Genetic Algorithm (GA) to optimize the resonant frequency of rectangular microstrip antenna, fabricated on duroid 5880 substrate. The computed results are compared with the results obtained using Genetic Algorithm optimizer using MATLAB. The antenna can be used for various x-band applications such as microwave life detection.

Keywords: ***Genetic Algorithm, Resonant Frequency, Transmission Line Model, Return Loss, Microstrip Antenna, Feed point.***

I. INTRODUCTION

Microstrip patch antenna of all shapes is widely used in communication system because of their small size, conformal geometry and low cost. These antennas are low profile, conformable to planar and non planar surfaces, simple and inexpensive to manufacture using modern printed-circuit technology, mechanically robust when mounted on rigid surfaces, compatible with MMIC designs, and when the particular patch shape and mode are selected, they are very versatile in terms of resonant frequency, polarization, pattern, and impedance [1]. This paper describes the use of Genetic Algorithm to optimize the resonant frequency of a rectangular microstrip antenna. Genetic Algorithm is a class of search techniques that use the mechanisms of natural selection and genetics to conduct a global search of the solution space [2] and this method can handle the common characteristics of electromagnetic [3]. The rectangular microstrip antenna was modeled using the cavity method of analysis and the fitness functions to optimize the gain and resonance frequency was obtained. The Genetic Algorithm program, for the optimization of microstrip antennas, is developed using MATLAB [7]. Antenna was assumed to be operating in the fundamental TM10 mode. For different feed points, return loss is calculated [5]. Feed point is selected at which return loss is minimized. Optimization of resonant frequency, using GA, was done for a particular value of dielectric constant and substrate height.

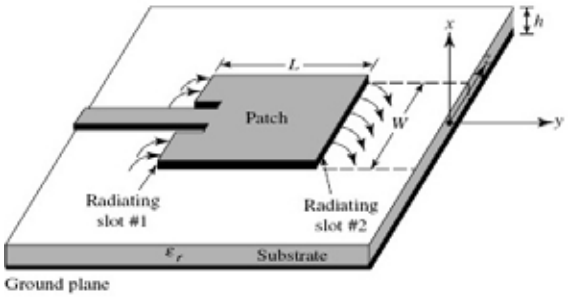
II. GENETIC ALGORITHM

Genes are the basic building blocks of genetic algorithms. A gene is a binary encoding of a parameter. A chromosome in a computer algorithm is an array of genes. Each chromosome has an associated cost function, assigning a relative merit to that chromosome. The algorithm begins with a large list of random chromosomes.

Cost functions are evaluated for each chromosome. The chromosomes are ranked from the most-fit to the least-fit. According to their respective cost functions. Unacceptable chromosomes are discarded, leaving a superior species-subset of the original list. Genes that survive become parents, by swapping some of their genetic material to produce two new offspring. The parents reproduce enough to offset the discarded chromosomes. Thus, the total number of chromosomes remains constant after each iteration. Mutations cause small random changes in a chromosome. Cost functions are evaluated for the offspring and the mutated chromosome, and the process is repeated. The algorithm stops after a set number of iterations, or when an acceptable solution is obtained [3, 6, 9, and 12].

III. THEORY

Microstrip antennas, as shown in Fig.1, consist of a very thin ($t<<\lambda_0$, where λ_0 is the free-space wavelength) metallic strip (patch) placed a small fraction of a wavelength ($h<<\lambda 0$, usually $0.003\lambda_0 \leq h \leq 0.05\lambda_0$) above a ground plane. There are numerous substrates that can be used for the design of microstrip antennas, and their dielectric constants are usually in the range of $2.2 \leq \varepsilon_r \leq 12$ [8].



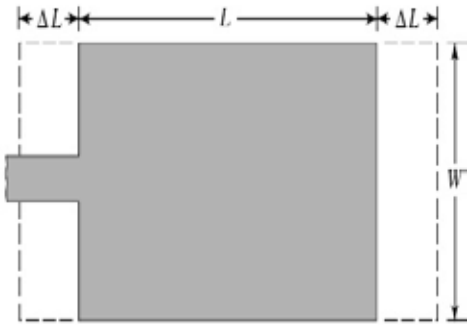


Fig.1 Microstrip Antenna **Fig.2 Fringing Effect in Rectangular Patch (Top View)**

The transmission-line model represents the microstrip antenna by two slots, separated by a low-impedance Z_c transmission line of length L.[4] Because the dimensions of the patch are finite along the length and width, the fields at the edges of the patch undergo fringing. The amount of fringing is a function of the dimensions of the patch and the height of the substrate as shown in Fig.2. As W/h >> 1 and ε_r >> 1, the electric field lines concentrate mostly in the substrate. Fringing in this case makes the microstrip line look wider electrically compared to its physical dimensions. Since some of the waves travel in the substrate and some in air, an effective dielectric constant ε_{reff} is introduced to account for fringing and the wave propagation in the line. [10, 11]

The expression for effective length is

$$L = \frac{1}{2 f_r \sqrt{e_{reff}} \sqrt{m_0 e_0}} - 2DL \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

The expression for width is

$$W = \frac{1}{2 f_r \sqrt{m_0 e_0}} \sqrt{\frac{1}{e_r + 1}} \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

The expression for ΔL and ε_{reff} can be found in [1].

The expression for return loss is

Return loss = $-20\log_{10}(\Gamma)$ ..... (3)

The expression for Γ can be found in [1].

IV. METHOD OF APPLICATION OF GA TO THE MICROSTRIP ANTENNAS AND COMPUTED RESULTS

The value of dielectric constant, height of substrate and operating frequency is 2.2, .158cm, 10GHz respectively. Length and width of rectangular microstrip patch antenna is calculated using (1), (2). By using length and width, for different feed points, return loss is calculated. Feed point is selected at which return loss is minimum. Resonant frequency is optimized through genetic algorithm. The GA was ran for 100 generations. Population size was 20, population type was double vector, and Crossover fraction was 0.8. However resonant frequency was optimized at which return loss is minimum.

V. MEASURED RESULTS

Value of εr is 2.2 and height of substrate is 0.158 cm, operating frequency is 10 GHz. MATLAB is used to simulate the various parameters of microstrip patch antenna physical length, physical width, return loss at different feed points[7] as shown in Fig.3.

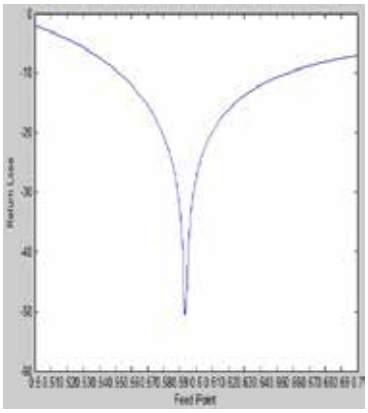


Fig.3 Feed Point vs Return Loss

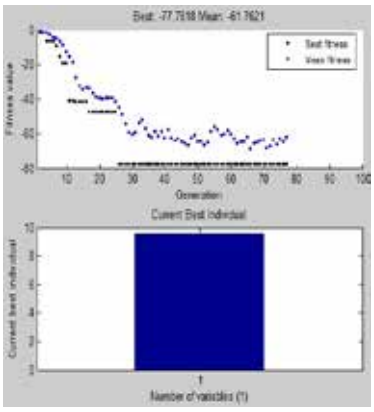


Fig.4 Optimization of Resonant Frequency Using GA

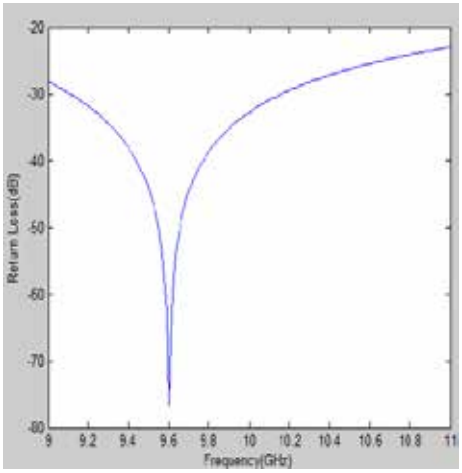


Fig.5 Return Loss vs Resonant Frequency

TABLE I

Frequency (GHz)	Input Impedence (Ohm)	Reflection Coefficient	VSWR	Return Loss (dB)
9	54.0705	0.0391	1.0814	-28.1537
9.1	53.3296	0.0322	1.0666	-29.8366
9.2	52.6162	0.0255	1.0523	-31.8709
9.3	51.929	0.0189	1.0386	-34.4593
9.4	51.267	0.0125	1.0253	-38.0537
9.5	50.6292	0.0063	1.0126	-44.0783
9.6	50.0147	0.00147	1.0003	-76.6676
9.7	49.4225	-0.0058	0.9884	-44.718
9.8	48.8517	-0.0116	0.977	-38.6986
9.9	48.3016	-0.0173	0.966	-35.2504
10	47.7714	-0.0228	0.9554	-32.8435
10.1	47.2603	-0.0282	0.9452	-31.0046
10.2	46.7676	-0.0334	0.9354	-29.5242
10.3	46.2927	-0.0385	0.9259	-28.2908
10.4	45.835	-0.0435	0.9167	-27.2381
10.5	45.3937	-0.0483	0.9079	-26.3234
10.6	44.9684	-0.053	0.8994	-25.5174
10.7	44.5585	-0.0575	0.8912	-24.7996
10.8	44.1634	-0.062	0.8833	-24.1544
10.9	43.7826	-0.0663	0.8757	-22.6946
11	43.4158	-0.0705	0.8683	-23.0383

From Fig.3 feed point is obtained at which return loss is minimum. Then further resonant frequency is optimized using GA with fixed length, width and feed point that we obtained from MATLAB. The optimized resonant frequency is 9.6045 GHz at which return loss is -77.7818 dB as shown in Fig.4 Now we compared the optimized result with the theoretical values. Here we have result in tabular format. We have 21 different values of resonant frequency ranging from 9 GHz to 11 GHz given below:

VI. CONCLUSION

These designed antennas are very simple, cost effective and high efficiency for the applications in GHz frequency ranges. The optimum design parameters (i.e. dielectric material, height of the substrate, operating frequency) are used to achieve the compact dimensions and high radiation efficiency. The combined feeding antenna is planar array, therefore, this Antenna can control the beam shape in both planes and provides more directivity and radiation efficiency. For which ε_r = 2.2, h=0.158 cm, L=0.906cm, W=1.186cm & Optimized resonant frequency is 9.6045 GHz. The operating frequency of all our designed antennas is about 10GHz which

is suitable for X-band applications. It would also be possible to design an antenna operating in any other frequency bands by changing the design parameters.

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RECENT TREND IN MANAGEMENT EDUCATION

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ABSTRACT

India is witnessing a sea of change in the way Management Education is taking place. Thousands of Business Schools have mushroomed in the last decade and Lakhs of Graduates and Professionals are undergoing Business Education to be better equipped for the growing economy. Current trend of management education has changed. No more, education is restricted to a certain class of people. Today institutes are grooming their students as required by corporate. However, a very important question arises i.e. what special or extra needs to be done in order to make the Management education more effective and Industry Oriented. One of the very crucial elements that need to be incorporated is the involvement of Corporate Sector in the Management Education, to make it effective and industry oriented, since only the Corporate Sector is the direct beneficiary of the Higher and Management Education.

This paper addresses the issue related to the need of engagement by the Indian Corporate Sector in our management education system. Various challenges faced by the B-school and Corporate in placing the student and selecting the suitable candidate along with the measures adopted by the Organizations to accomplish this gap has been elaborated in this paper.

I. INTRODUCTION

Indian growth and development is in leaps and bounds in all the sectors and dimensions. The age old Industrial setups have been replaced by the new Technology, coupled with lot of creativity and innovations. The Corporate Sector has matured and advanced armed with modern education, values and great aspirations to grow and compete globally. With the growth of Economy, the need for Management Education has increased since to run modern Organizations, we need trained workforce. Thus, the Management Education plays a very crucial role in harnessing the Indian Youth and develops future leaders.

1.1 Current Scenario In India

In the current state of continuous growth in India, in multi dimensions, the role of education has become all the more important, since our society and living standard has been transformed into a knowledge based structure. In our daily lives, we are constantly driven by Technology in many forms. So much so, that the new generation is adapting to the use of Technology in education right from the birth, instead of the conventional forms of education tools. The more educated our society is, better are the chances of creating a whole new breed of educated, empowered and well read professionals and future leaders, who can easily exploit the potential of the emerging opportunities for progress and economic advancement in the globalised environment.

Is our Education System also changing and adapting to the needs of the fast paced developing country, like India? Are we able to maintain a balancing equation between the forecasted HR Demand and Supply in our country?

In other words, are we successful in creating an educated and trained future leader, ready with all the skill sets to be able to adapt them to the fast paced Corporate Scenario and start contributing towards the country and society, in some way or the other?

As per one of the report by FICCI, The Indian higher education system has exhibited impressive growth over the last decade to become one of the world's largest systems of higher education. The number of institutions has grown at a CAGR of 11% while student enrollment has grown at a CAGR of 6%. The Government has set a target of 30% Gross Enrollment Ratio (GER) by the year 2020, which seems difficult to achieve at the present state of affairs. The first and the foremost question that arises is how is this going to be possible? The focus and innovation is required at lot of areas concerning Higher Education, however, one of the very important role in Rejuvenating Management Education is the involvement of Corporate Sector in Academia in various forms and shapes. The Indian Management Education is going through a major transition phase due to the ever increasing demands of skilled employee by the Private Sector. The questions that remains unanswered is what methodology should a Business School adopt in order to have a Job ready Indian Youth and more and more skilled Professionals are created. Let's understand in the ongoing scenario, what are the current practices that are implemented by Business Schools and Corporate Sector.

1.2 Current Practices in B-schools

In the modern world, education system is globalized. Students are preparing and competing on a global stage. Business schools are expanding and modifying its teaching methodology to cater to the growing demands. Business schools have campuses set up worldwide to give global exposure to students. The teaching pedagogy adopted by the Business Schools varies from one institution to another. Organizations are developing themselves aggressively to thrive and be successful in the market. Some of teaching strategies adopted by these schools are as follows:

1.2.1 Students are taught to comprehend live corporate situations by case study in order to grasp the nuances of business and learn the art of situation handling. Students are encouraged to work in teams, take initiative, share opinion, face innovative managerial issues and risk taking behavior. This methodology focuses on increasing the human skills through conceptual understanding of subjects, with complete exposure to industrial practices.

1.2.2 B-schools are conducting Guest Lectures by inviting eminent personalities from industry to speak on the area of their expertise. They talk on diverse topics such as international growth, corporate diversity, corporate ethics, consumer behavior etc. and share their experiences by conducting interactive sessions. These Guest lecturers also develop corporate links and help institutes for internship & final placement of students. Even students get guidelines for their career growth.

1.2.3 B-schools also host a number of annual conferences and seminars with distinguished business leaders and entrepreneurs as guest speakers.

1.2.4 Students undergo summer internship project for a period of six to eight weeks with reputed companies. This enables them to understand theoretical concepts learned in Classrooms in a real-life corporate context.

1.2.5 Students also work in live and time bound projects to gain experience of the corporate culture. Through these live projects students develop professional attitude, sense of responsibility, analytical ability and leadership qualities. It also helps the industry in assessing the student's performance and potential, on the basis of which pre-placement offers are often made.

1.2.6 Educational Trip help students to gain knowledge of foreign cultures, languages etc. This help students in learning team building, leadership, participative skills.

1.2.7 B-schools arrange industrial visits for the students. Students visit companies like Parle, Mother Diary, Hero Honda, NSIC etc and relate theory with practical conditions.

1.2.8 Students perform role plays in management situations provided by Faculty members. Even B-schools hire professional consultants for conducting various role play activities. This helps the students to face the situation and perform well in Corporate Sector.

1.2.9 For imparting knowledge to the students, schools are well equipped with knowledge base in the form of Library, e-library, subscription for journals, newspapers, magazines.

1.2.9.1 Performance of the students is evaluated regularly on the basis Assignment, Presentation, Case studies, Reports, Internal & External exam. Students, along with the Faculty members initiate a number of activities as a part of academic clubs (Marketing, Finance, Human Resource, Information Technology and International Business.), cultural club and sports club.

1.2.9.2 Pre-course reading materials are in the form of text books, cases, articles, etc. which are made available to all students in the start of new session.

To make the learning process easier and more interesting, Business Schools follow various teaching methods and tools, and extensively make use of teaching aids like LCD, Slide Projectors and video. The School aims at creating a homely atmosphere for its students. Some of the Business Schools also follow the concept of mentoring under which each student are allotted a Mentor who will help him not only in academic matters but other matters and problems, that he/she may face in any walk of life.

From the above discussed practices it is clear that B-schools are providing various means to impart quality in education, however, somehow they are not able to meet up with the student expectation. B-schools and Companies are facing challenges to provide talent and to recruit talent. Further challenges faced by B-schools and Industries are discussed.

II. CHALLENGES FACED BY B- SCHOOLS & CORPORATE

Trend of B-schools have changed, from college campus to corporate. Apart from having separate corporate centre or placement department, institutes are struggling for good placement and companies are looking for suitable candidates. Further, challenges faced by B-schools & Corporate have been discussed:

2.1 Challenges faced by B- Schools

2.1.1 Now a day's Business schools are playing more of business man role, rather than playing role of schools. The focus is more on the commercial aspect rather than the Quality and that's why the Management Graduates are lacking the knowledge and the content.

2.1.2 With growing popularity of MBA programmes among Indian youth, many small and unrecognized B-schools have mushroomed all over the country. These institutes do not offer quality education and make fake promises to lure students. Most of these courses are not even of two- years as offered by respected management Schools.

2.1.3 B-schools in India face the problem of intake of students which varies in quality, and students having no work experience. Apparently, parents want their children to finish the post-graduate education before opting to work. Thus, students lack industry experience which is essential for management education. Even students fail to appreciate real challenges which companies and industries are facing.

2.1.4 Another challenge that B-schools face is lack of soft skills among students, which is necessary for becoming successful managers. Many of them come from a background in the first 15 years of education which does not prepare them for the number of soft- and life-skills which help them to be a better manager. So the training for soft skills becomes an added responsibility of B-schools to prepare the students for the right kind of job. Making students employable from day one is the top most challenge for B-schools in India. B-schools are addressing this in different ways. Grooming classes, business etiquette and cross-cultural training are becoming the norm. Business communication forms an integral part of the course curriculum of most of the B-schools.

2.1.5 For any B-school to impart meaningful business education, the quality of faculty members is paramount. Moreover, the faculty body with all its qualification needs to connect with the industry. Management education in India, for all its benefits, is largely disconnected with the industry. Faculty members are not doing the kind of research that is valued by companies as well as the practicing managers. Very few faculty members are actively engaged with management development programmes, consultancy and research with companies. So the knowledge shared by majority of faculty members becomes theoretical, or, borrowed from international B-schools which may not be relevant to the Indian context.

2.1.6 The disconnect with the industry, as a whole, is so high in India that major case studies, which are discussed, have been written by professors of international repute. Though there is always a race to write case studies, the output is of low quality, and lacks relevance; the same goes for text books and general business books. The quantity is abysmal and the quality is not worth mentioning. There is serious absence of a debate among management educators about pedagogy and the curriculum which could solve the problem that India's B-schools are facing currently.

2.1.7 To identify India's business and social problem and to conduct research and seeking solutions for those problems remain as the foremost challenge.

2.1.8 B-schools also face the shortage of quality faculty members with doctoral degree or substantial industry experience. As the salaries of faculty members is substantially low compared to international B-schools and corporations in India, the qualified lot are not considering teaching as an option.

2.1.9 The existence of B-schools is highly dependent on a close as well as active association with companies, industry and societies. Many Indian companies are not organized, and are not thus open to the idea of faculty members conducting research and writing about the issues which companies may not be comfortable with.

2.1.10 B-schools were setup with the ideal: Management as a stream will contribute to the development of the society at large, and its graduates will contribute in all areas of economic and social progress. However, with high-caliber students seeking to focus on fat salaries, the vision has only become narrower. The call now is to revive those ideals so that modern management practices can benefit and increase efficiency, productivity and transparency of several local and national institutions of public importance.

Last but not the least; B-schools can't simply become placement agencies. The challenge is to become an institution, where leadership is promoted and nurtured with a long-term vision. To make businesses sustainable and socially relevant, managers have to demonstrate competence, leadership, character and empathy for the needy. Young managers have to serve the companies with a larger purpose of nation-building with honesty and integrity intact. Building character and inculcating empathy among budding managers, which will make them leaders of society, remain a perennial challenge for B-schools in India.

2.2 Challenges faced by B- Schools & Corporate

2.2.1 A survey was conducted among senior level Professionals from Corporate Sector, working in various domains, such as, Human Resources, Production, Marketing, Client Engagement etc. Information was collected on their experiences of hiring Management Graduates from a Business School and their Performance during the Post recruitment Period in an organization. Based on the data received, we have listed down some of the challenges that are being faced by the Private Sector while recruiting from a Business School.

2.2.2 The Students do not have a Practical exposure of Business: The Management Graduates lack the Industry Knowledge and Practical Know-how. An overall understanding of Industry Environment is altogether in most of the Business School Graduates, which makes it difficult for Industry Professionals to recruit them for a Live Project.

2.2.3 The focus on Research is missing in Indian Business School: Unlike International Business School, Indian Counterparts are lacking the focus into Research completely. The Students are not groomed to do Research, which gives them a leverage of working on Secondary Data and not on the Primary Data.

2.2.4 The Graduates are not taught the Soft Skills required for a Corporate Sector: The Corporate Sector demand a very Professional behavior to be able to succeed well, which most of the Indian Business Schools don't take seriously and thus, a Management Graduate has to suffer, inspite of a good subject Knowledge.

2.2.5 The Skill Based Education is still lacking: Though there are lot of advancement in the Management School Pedagogy, however, even now, focus on Skill based Education is still lacking, due to which inspite of so many Higher Education Schools opening up, there is a lack of Skilled worker.

2.2.6 The Corporate Sector has to invest heavily in the Post recruitment Training of Management Graduates, which comes as an additional Financial and Time Constraints: This is one of the major constraints of Corporate Sector, while recruiting from Management Schools. The Management Graduates are not Industry trained and thus, Companies which recruits a Management Graduates, have to incur an additional cost on their Training and Development.

III. CONCLUSION

The paper reveals that there needs to be a complete re-thinking of management education, as most of management institutes fail to deliver quality education and practical training to the admitted students, and lack preparing them to meet the global business needs. From the study it has been found that the Industry and Institute interface plays a predominant role in management education. Industry and Institute interface helps management education adapt to demanding situations prevailing in corporate world. Exposing students to live business situations and cases which are more complex, demanding, critical, messy, will bring both faculty members and students closer to reality. But the fact is that the management education in general lacks the interface with industry and business resulting in a blockage or aimlessness in what management education deliver. So, this is the time for Institutes and Corporate to realize the need of corporate involvement in management education. Institutes alone can't do wonders, but will have to team up with corporate in order to benefit from the management education and the demographic dividend of India.

"The future depends on what we do in the present"-Mahatma Gandhi

IV. RECOMMENDATION

4.1 To overcome this serious lacunae, management education requires a massive experimentation in terms of extended summer internship for four to six months or in terms of experiential learning which involves several live projects of shorter duration. With students getting hands-on experience with companies and industry, they will be able to connect with the programmes in a more meaningful way. The Indian School of Business, Hyderabad, has incorporated the concept of experiential learning as an important component of its pedagogy. This has been done despite the fact that students have got three to seven years of work experience.

4.2 Faculty members who have doctoral and research degrees, and a fair amount of working exposure with companies across the industries, must be inducted into the system. Faculty members should be required to associate with companies for their respective research work.

4.3 Industry professionals must be involved to teach for short durations along with academically qualified faculty members. Many foreign B-schools such as The Stern School, New York University and Indian B-

schools like IIM Ahmadabad and ISB promote the idea of having industry professionals as adjunct faculties.

4.4 B-schools have to expand their focus area to other sectors so that they become socially more relevant. Areas like Corporate Social Responsibility, public governance, sustainable development, agriculture and rural management, environmental and natural resources management, functions of municipality and local bodies and co-operatives and public sector management need to be given importance

4.5 As Indian companies need to capture the market abroad, B-schools have to provide the theoretical construct of the Indian way of doing business like the Japanese, Korean, European and American way of doing business. This calls for close co-operation among companies and B-schools. This is the kind of collaboration which does not exist but will be required in the future

4.6 Curriculum needs to be updated: Many institutes have not changed their curriculum for a long time. It is still outdated and has not been updated with changing time and needs of the industry. According to a report in FINANCIAL Chronicle, the MBA courses focus on three things: knowing, doing and being. Since most professors are from research and academics, the scale is heavily tilted towards knowing. Among premier institutes in India, IIM-Calcutta has done a complete rethink and refresh of its curriculum. Its pedagogy is now being fine-tuned to become accustomed to the new thinking and curriculum

4.7 Ranking: It is important to rank the institute correctly as it has an impact on student's career. One has to take a holistic view and looks at parameters like career advancement, life-cycle earnings, richness of experience and contribution to society for ranking institutes.

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PC BASED AUTOMATIC IRRIGATION SYSTEM

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ABSTRACT

In certain areas of India, where agriculture is the major source of income, climate dry and unfavorable conditions often revolt and damage crops. This project ill help the agricultural sector to conserve water and provide crops with the necessary amount of water required. Even with less rain and water sources farmers will be able to use the available amount of water to the best with the help this system. Even in terms of man power, this proposed system will require almost no manual help. From the trouble of watering the fields to controlling the pump, everything will be taken care of by the system. All of this will

be covered by a process where soil moisture will be sensed by a sensor and it will be controlled by a pump as directed by a controller.

Keywords: Capacitive Moisture Sensor, Irrigation System, Microprocessor Based Controller, Pneumatic Valve, Soil Moisture Control.

I. INTRODUCTION

In a developing country likea India a majority of the people live life by farming. It can roughly be said that agriculture is the main backbone of India. At the same time with the growing rate of population in the country a huge supply-demand problem is being faced. As a result inadequate food supply, malnutrition, etc. are becoming growing problems of the society. In spite of having enough farmlands, farmers are failing to produce enough food mostly because of man power or inadequate fresh water supply due to the uneven geological diversity across the country. So to cope up to that problem this project is being proposed. This project will not only reduce the necessity of human labors but also open up the gates to conserve fresh

water and execute proper farming at the same time. With the help of this project rain-less monsoon will not be a very big disadvantage as the limited water from bore-wells and local water bodies can be put to use using this technology.

1.1 Proposed System

The proposed system will be a closed process loop where the applications of process control, control systems, digital signal processing will be used. The loop will consist of a capacitive sensor and transducer with AC signal which will record moisture level from the process. The signal from the transducer will be forwarded to the instrumentation amplifier. The amplifier, which will still be working on AC will forward it signal to a rectifier and filter. The rectifier will convert the AC signal to DC signal and the filter will determine the amplitude of the DC signal and check if it is not too high for the next few blocks to work. After the rectifier and filter block, the signals will be forwarded to the Zero, Gain & Span Adjustment block where the signals from the capacitive

sensors will simply be adjusted according to the calibration set in it. That calibrated signal will be forwarded to the PC separated by an Opto-isolater. The PC will act as the controller and compare the calibrated signal of the sensor with the user input set-point. After comparison it will generate a signal that will determine whether the moisture in the process is more or less than the set point. The generated signal from the PC will be forwarded to the final control element, once again separated by an opto-isolater, according the PC generated signal the final control element will open or close and control the level of moisture in the process.

II. BLOCK DIAGRAM

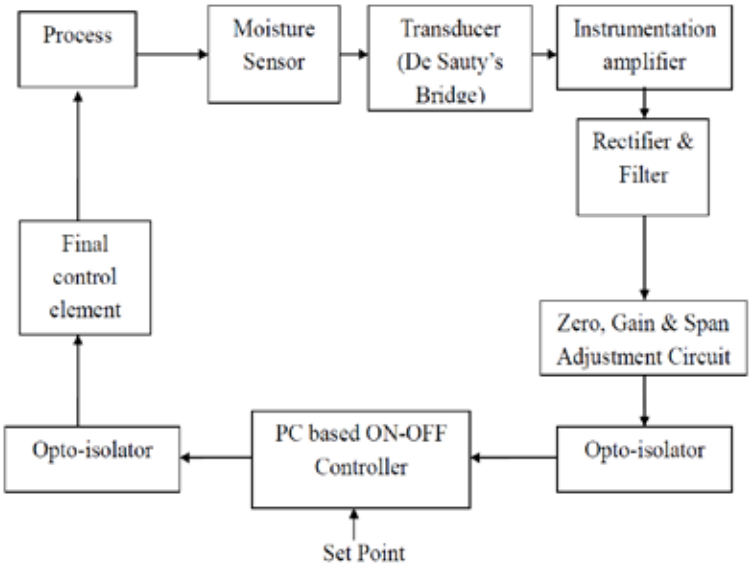
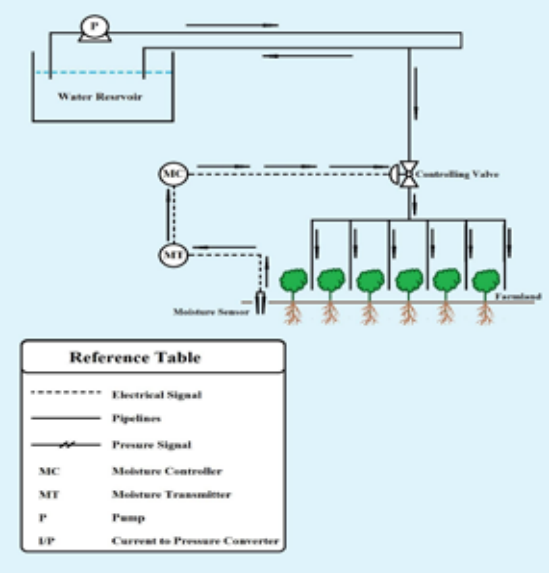


Fig. 2.1 - Overall Block Diagram of The Proposed Project.

The above figure (Fig. 1.1) shows an rough block diagram of the proposed project. As described in section 1.1 the figure acts as a closed process loop where moisture is controlled by a valve as per the direction of the PC.

2.1 P-I Diagram



2.2 Moisture Sensor

Soil moisture sensors measure the water content in soil. A soil moisture probe is made up of multiple soil moisture sensors. Since analytical measurement of free soil moisture requires removing a sample and drying it to extract moisture, soil moisture sensors measure some other property, such as electrical resistance, dielectric constant, or interaction with neutrons, as a proxy for moisture content. The relation between the measured property and soil moisture must be calibrated and may vary depending on soil type. Reflected microwave radiation is affected by the soil moisture and is used for remote sensing in hydrology and agriculture. Portable probe instruments are used by farmers or gardeners.

In our proposed project we are trying to develop our own sensor with the application and logic of capacitors and their capacitance. So what we are trying to use here can be called capacitive moisture sensor.

2.2.1 Capacitive Moisture Sensor

The sensor we are developing will consist of a parallel plate capacitors. The parallel plate capacitor will be probed inside the soil of he farmland where the soil will act as a dielectric medium. Now we know that a typical equation of capacitance as shown in Fig 4.1, is:

$C = \varepsilon_0 A/4\Pi d$

(1) Where, A = Area of the parallel plates overlapping

d = Distances between the plates and

ε_0 = absolute permittivity of the dielectric.

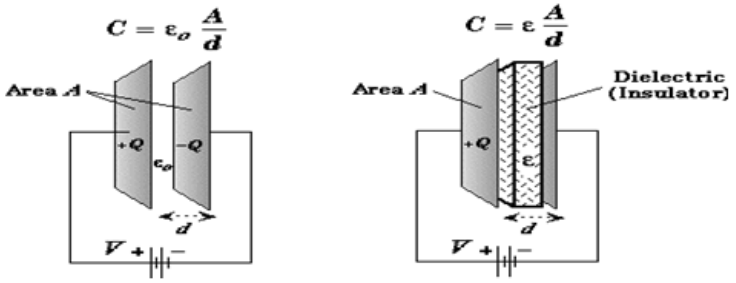


Fig. 2.3 Parallel Plate Capacitors

Now, from (1), we can see that capacitance is dependent on the dielectric permittivity, so change in dielectric permittivity will change in capacitance and in turn the voltage drop across it. This voltage change will denote the moisture content in the soil. Of course the sensor needs to be calibrated before that.

From tested materials it has bees seen that wood pellets are cylinder-shaped with uniform diameter and usually vary in length. For the pelleting process wood is dried, milled and pressed through a matrix. Lignin, which is a natural component of wood, serves as a binding agent in the pelleting process and no further additives are required. For the investigations carried out, the material diameter was 6 mm and the length of the material was in the range from 3 mm to 32 mm. Even though a moisture content of 10 % or

12 % will affect the calorific value of wood pellets only by a few per cent, any amount of energy to heat up and to evaporate bound water is taken from the combustion and makes this process less effective at the combustion site. Detecting small changes in material moisture, as expected for a variety of applications, is of course a central issue with electrical measurement.

2.3 Transducer (De Sauty's Bridge)

The transducer here has been selected to be De Sauty's Bridge. This bridge provide us the most suitable method for comparing the two values of capacitor if we neglect dielectric losses in the bridge circuit. The circuit of De Sauty's bridge is shown below.

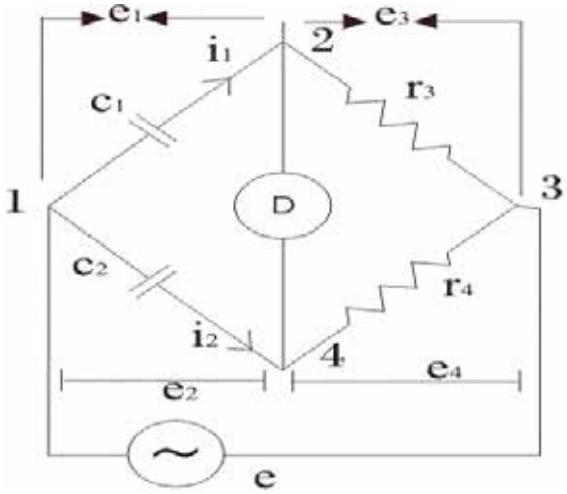


Fig. 2.4 De Sauty's Bridge

At balance condition we have,

$$\frac{1}{j\omega c_1} \times r_4 = \frac{1}{j\omega c_2} \times r_3$$

It implies that the value of capacitor is given by the expression

$$c_1 = c_2 \times \frac{r_4}{r_3}$$

In order to obtain the balance point we must adjust the values of either r_3 or r_4 without disturbing any other element of the bridge. This is the most efficient method of comparing the two values of capacitor if all the dielectric losses are neglected from the circuit. We will balance the bridge according the requirement of moisture. Due to the change of of moisture capacitance of the capacitop will vary & as a result we will get an unbalanced voltage which we will fed to the signal conditioning circuit.

2.4 Instrumentation Amplifier

As the output of any sensor is very low,the Instrumentation amplifier is generally used to increase the signal level.Instrumentation amplifier is a type of differential amplifier that has been outfitted with input buffers, which eliminate the need for input impedance matching and thus make the amplifier particularly suitable for use in measurement and test equipment. Additional characteristics include very low DC offset, low drift, low noise, very high open-loop gain, very high common-mode rejection ratio, and very high input impedances. Instrumentation amplifiers are used where great accuracy and stability of the circuit both short- and long-term are required.

Although the instrumentation amplifier is usually shown schematically identical to a standard op-amp, the electronic instrumentation amp is almost always internally composed of 3 op-amps. These are arranged so that there is one op-amp to buffer each input (+,−), and one to produce the desired output with adequate impedance matching for the function.

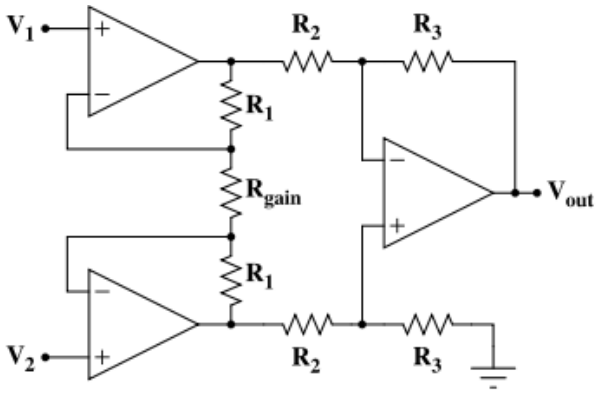


Fig 2.4 The Most Commonly Used Instrumentation Amplifier Circuit is Shown In The Figure.

2.5 Rectifier & Filter

Output of the Transducer is AC signal, so to convert this signal to DC wehave to use rectifier and filter. RC and other filters are very widely used in selecting signals and rejecting noise. A low pass filter may be considered as a filter that allow the DC but attenuate the AC component of a signal that is passing through it. Conversely, a high pass filter can pass the high frequency signal through it thus it is used it sort high frequency components in a purely AC signal. Capacitor may be considered as high frequency accepter and low frequency rejecter.

2.5.1 Low Pass Filter

A first order low pass RC filter is simply an RC series circuit across the input, with the o/p taken across the capacitor. We assume that the o/p of the circuit is not connected, or connected only to high impedance, so that the current is the same flowing through the R and C.

At high frequencies, the capacitor shorts out the i/p to the high frequency signal and hardly affect the low frequency signal. So this circuit is behaves as high frequency signal.

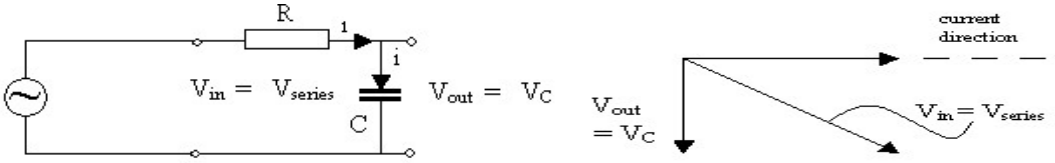


Fig 2.5 Low Pass Filter

2.6 Zero, Span & Gain Adjustment

2.6.1 Zero Adjustment

The output voltage from the sensor is amplified to 1-5 V by the amplifier in the measuring circuit. That is zero of the input voltage is to be adjusted at IV. This zero may not be adjusted by bridge potentiometer in one of the ratio arms. But this potentiometer should be kept at a value so that the bridge is almost balanced at zero level condition.

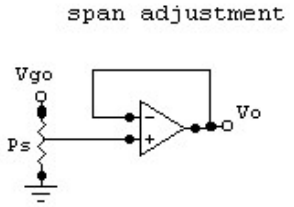


Fig 2.6 Span Adjustment

2.6.2 Span Adjustment

This network is required to adjust the final indication within the whole span of the instrument. It consists of the network as shown in Fig. below

2.6.3 Gain Adjustment

This network is needed to adjust the gain of the instrument. This amplifies the output of the zero adjustment networks so that after amplification the signal is sufficient to drive the output indicator throughout its whole range. A simple amplifier circuit having variable feedback resistance in inverting mode is used for this network.

2.7 Opto-Isolator

Even in most demanding industrial application, in spite of use of instrumentation amplifiers and proper application of grounding and cabling techniques, there may be serious problems in ground loops extremely high common mode voltages and very low failure current requirements. All these problems can be solved with an isolation amplifier hybrid integrated circuit.

The usual Opto isolator circuit generally consists of a Light Emitting Diode (LED) and a phototransistor or a photodiode. But the phototransistor or a photodiode is more expensive than the Light Dependent Resistor (LDR). So in the present project an LED LDR based Opto-isolator circuit has been designed. The

LED-LDR pair is enclosed in a black-coated chamber in the form of a black PVC tube surrounded by clack cover.

An Opto-isolator Circuit has been shown in the following Fig.

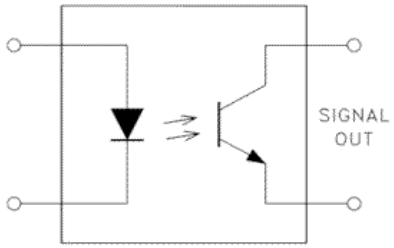


Fig. 2.7 Opto-isolator

2.8 Pc Based On/Off Controller

We use NI Lab View to develop ON OFF Controller. To fetch the signal from Opto-Isolator to NI LabView DAQ Assistant of the software is used. One comparator is chosen to compare the transducer output and the given set-point.. The set-point is given manually over here and the output of the comparator will sent to the final control element by using another DAQ Assistant. We are using NI Lab View as the controller here as it will be easier to develop the controller in the future.

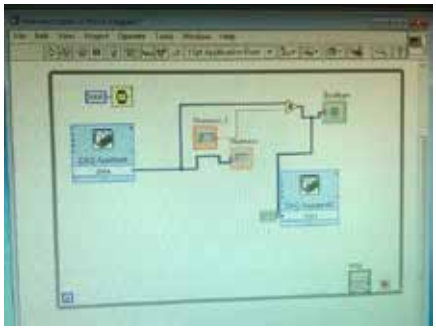


Fig 2.8 Using on off Controller in NI Lab View

2.9 Final Control Element

Final control element is used to manipulate the controlling variable(flow rate of water), such a way that controlled variable (moisture) is at its set point value. We have chosen electronic valve as final control element. As the signal from the controller is electronic so it will be easier to use an electronic valve. We can also use a solenoid valve as a final control element.

III. CONCLUSION

The system provides with several benefits and can operate with less manpower. The system supplies water only when the humidity in the soil goes below the reference. Due to the direct transfer of water to the roots water conservation takes place and also helps to maintain the moisture to soil ratio at the root zone constant to some extent. Thus the system is efficient and compatible to changing environment.

3.1 Application and Scope

1. Saves water - Studies show that drip irrigation systems use30 - 50% less water than conventional watering methods, such as sprinklers.
2. Improves growth - Smaller amounts of water applied over a longer amount of time provide ideal growing conditions. Drip irrigation extends watering times for plants, and prevents soil erosion and nutrient runoff. Also, because the flow is continuous, water penetrates deeply into the soil to get well down into the root zone.
3. Discourages weeds - Water is only delivered where it's needed.
4. Saves time - Setting and moving sprinklers is not required. A timer delay as per environment can be added to the system for automatic watering.
5. Helps control fungal diseases, which grow quickly undermost conditions. Also, wet foliage can spread disease.
6. Adaptable - A drip irrigation system can be modified easily to adjust to the changing needs of a gardener lawn.
7. Simplest Method - Start by drawing a map of your garden and yard, showing the location of plantings. Measure the distances required for lengths of hose or plastic tubing to reach the desired areas.

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APPLICATIONS OF CYLINDRICAL AND RADIAL HEAT SINKS FOR COOLING OF LED LIGHT BULBS: A REVIEW

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ABSTRACT

Fin arrays on horizontal and vertical surfaces are used in variety of engineering applications to dissipate heat to the surroundings. Studies of heat transfer and fluid flow associated with such arrays are therefore of considerable engineering significance. The main controlling variables generally available are the orientation and the geometry of the fin arrays. The purpose of the present study is to study the recent literature available for the use of the heat sinks for the heat dissipation from LED light bulbs. The review of the latest research papers was carried out and reported here. It is found that more thrust is needed to be given on the reduction of the weight of these heat sinks. So it is proposed to carry out more research in this area. It is noticed that, the rectangular plate finned heat sinks are showing better performance with the area removed in the form of notches. So it is required to compare the performance of the finned arrays under notched and un-notched conditions.

Keywords: Fin Efficiency, Heat Transfer Coefficient, Notch & Un-Notch Fin, Nusselt Number, Thermal Resistance

I. INTRODUCTION

Fin arrays on horizontal and vertical surfaces are used in variety of engineering applications to dissipate heat to the surroundings. Studies of heat transfer and fluid flow associated with such arrays are therefore of considerable engineering significance. The main controlling variables generally available are the orientation and the geometry of the fin arrays. In case of short horizontal arrays, it is observed that the air entering symmetrically from both the ends gets heated as it moves towards the centre of the fin channel, as well as it rises due to decrease in density. So, the central portion of the fin becomes ineffective because hot air-stream passes over that part and therefore it does not bring about large heat transfer. This area is removed at the centre from fins and they became inverted notched fins.10%-40% area removal increases the heat transfer rate. This modified geometry increase in heat transfer rate, reduces material cost and material weight.

II. LITERATURE REVIEW

The aim of the survey is to study the ongoing work in the field of LED cooling using the heat sinks. Various fin

geometries are studied and the brief is presented hereafter,

Kim et al, 2014 [1], compared the thermal performance of vertical cylindrical sink with Branched fins & conventional plate fins & Proposed correlation for estimating Nu. With increase in angle of inclination, the drag coefficient increased and the Nu decreased. The best thermal performance was obtained for vertical orientation. Orientation effect was intensified by increasing the number of fins or the fin length.

Kim et al, 2013 [2], investigated natural convection from horizontal cylinders with longitudinal plate fins. Numerical model considering for natural convection and radiation heat transfer was developed experimentally.

Kim et al, 2013 [3], investigated natural convection from vertical cylinders with longitudinal plate fins. Proposed correlation for estimating Nu.

Lee et al, 2014 [4], heat sink of LED lighting was optimized with respect to its fin-height profile. Optimization was conducted to simultaneously minimize the thermal resistance and Mass. The cooling performance of the optimized design (pin–fin array with the tallest fins in the outer region) showed an improvement of more than 45%.

Lee et al, 2012 a [5], radiation effect on total heat transfer for radial heat sink was studied by varying emissivity. Optimization was carried out for Rth with and without considering change in mass.

Lee et al, 2012 b [6], optimization of Mass and R_{th} for radial heat sink with pin fins was carried out. Compared to LM fin array mass reduction of 35% was obtained for fin array.

Lee et al, 2011 [7], three types of radial plate heat sink (L, LM and LMS) were compared to determine the optimum model. Multi-objective optimizations considering thermal performance and mass simultaneously were performed.

Lee, 2010 [8], experimental and numerical investigation of natural convection in a radial heat sink was studied. As the number of fins, fin length, and fin height increased, thermal resistance and heat transfer coefficient generally found to be decreasing.

Dixit et al, 2013 [9], horizontal rectangular fin array with notched fins were investigated. Different shapes of notches were numerically investigated. Heat transfer coefficient for fins with inverted notch is found to be more in comparison with plane fins & triangular notch gives better heat transfer. Triangular notch gives better heat transfer performance as compared to trapezoidal and rectangular notches.

Wange et al, 2013 [10], computational and Experimental analysis of Inverted notched fin arrays is carried out & Inverted notched fin arrays gives better performance compared to plane fins.

Shen et al, 2014 [11], orientation effects on the fluid flow and heat transfer of rectangular fin heat sinks were studied. The performances of four heat sinks were studied in 8 different orientations.

Sane et al, 2008 [12], computational and Experimental analysis of Natural convection heat transfer from rectangular notched fin array. Notches enhance the heat transfer rate.

Elshafei, 2010 [13], the heat transfer characteristics of round hollow/perforated pin fin heat sinks subject to the influence of its geometry, heat flux and orientation are investigated under natural convection. The heat transfer performance for heat sinks with hollow/perforated pin fins was better than that of solid pins.

Maaspuro, 2013 [14], thermal model for LED spot light device has been created and simulated using a FEM. Both external natural and forced convection conditions were simulated. Results indicated that LED junction temperature can be reduced up to few degrees if grease with poor thermal conduction is replaced with the best silicone materials.

Luo et al, 2007 [15], experimental research on an 80 W LED street lamp is described. Maximum surface temperature of the aluminum base of the lamp was found to be about 80 C. The junction temperature of the LED chips is nearly close to 120 C at an environment temperature of 45 C, which leads to poor reliability and lower life and optical efficiency.

III. CONCLUSIONS

Like other electronic devices, the maximum junction temperature of LED chips should be kept at a suitable temperature (normally below150 C). The traditional types of heat sinks to cool LEDs mainly include metallic fin heat sinks which have the highest reliability. Many metallic heat sink geometries are studied and reported. Cylindrical heat sinks with longitudinal plate fins, due to the geometry of LED lightings, take center stage for cooling LED lightings. The rectangular plate finned heat sinks are showing better performance with the area removed in the form of notches. So it is required to compare the performance of the finned arrays under notched and un-notched conditions.

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REAL TIME PLC BASED CONTROL SYSTEMS USING WIRELESS SENSOR NETWORKS

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ABSTRACT

A main aim of proposed system is to monitor and control a PLC based system wirelessly for an industry with wired PLC, it can be achieved using GSM & RF module. In some cases no person is required to do the process manually. Person can need only to send the reply about the process that is to be carried out and PLC will check the status of the SMS sent by person and take the action according to it. Status of field is sent to user by PLC via RF module based on the input status of the sensors that are placed at the field an these simulation of this project will be carried out by using INTOUCH HMI. To verify the functionality and monitor the temperature and humidity sensor levels INTOUCH HMI symbol factory tool is used and these system design is implemented in windows scripts with C language can be generated by using INTOUCH HMI. For implement this project I am going to use GSM SIM300 module, DVP 10SX PLC, Switches as a sensors, Motors as an output and RS485 to RS232 converter.

Keywords: GSM, Humidity sensor, INTOUCH HMI, PLC, Pressure sensor, RF module.

1. INTRODUCTION

A programmable logic controller are commonly known as PLC, is a digital, solid state, industrial computer using for an integrated circuits instead of electromechanical devices to implement their control functions. Also, it was invented in order to replace their sequential circuits which were mainly used for a machine controls. It is capable of storing instructions, such as timing, sequencing, arithmetic, counting, data communication and manipulation, to control machines and processes.

Also, According to NEMA(National Electrical Manufacture's Association ,USA),the definition of PLC has been given as Digital electronic devices that can uses a programmable memory and to store instructions and to implement specific functions such as logic , sequencing, timing, counting, and arithmetic to control machines and processes.

A PLC programming is done by using a Ladder diagram Language among some several languages. From a Ladder diagram is specialized an schematic language are commonly used to industrial control logic unit systems. It called as "ladder" diagram and because it likeness to a ladder with two vertical rails are (supply power) and as many "rungs" are (horizontal lines) as there are control circuits to represent.

To implement wired PLC with a wireless sensor networks on RF module and some important modules to increases their efficient communications. Various of important modules are like: Implements GSM module, System interfaces with RF for Wireless communications, Any location in the field we can know sensors value through GSM controller and can controls sensors value, Obtaining efficient controls.

In these Wired PLC are implemented with a wireless sensor networks for efficient transferring data values. Sensors are controlled and monitored through GSM module corresponding its set value points. For RF module is to communicate their remote location areas. Depends on that corrected values from set points it can be functioned. Each process of sensors values can be transferred for dedicated system or a person to knowing their present situation of field.

II. PROPOSED SYSTEM

PLC based control system with Wireless Sensor Networks. Humidity sensor is to sense how much humidity present in that place. Depends upon the humidity level solenoid valve will be opened. Also, float sensor is to sense whether water is reached on a specified limit. Timer based system is also implemented whenever if possible.

Through RF module can monitor and control their complete process automation. Adding of GSM module can knows their status of working operation in these system.

III. BLOCK DIAGRAM

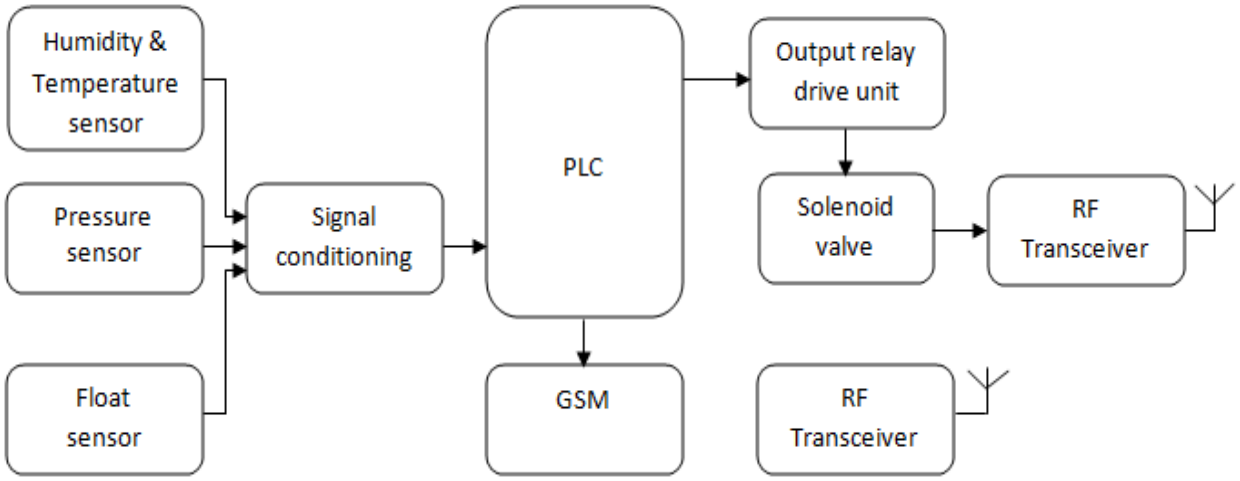

Fig.1 Block Diagram

The above block diagram Fig.1 represents the automatic control mechanism. Here each of the functional unit is represented in a block. Basic function of the whole of the system is to control by an RF module. Main control unit of the circuit is the PLC controller whose description is given before.

Delta10sx PLC controller works on a voltage of 24V DC so it is fed from SMPS power supply unit through a plug. The humidity sensor sense the humidity in soil and gives analog voltage input to controller A/D port, similarly the “float sensor” also sense the water level reached or not and passes the voltage signal to controller. The A/D converter are converts the analog signals into an digital signals which is compared by an values to controller. Whenever the humidity level is below then the solenoid valve is switched ON and kept running till humidity is brought below and then the supply is cut OFF through solenoid valve.

3.1 Components & Description

3.1.1 RS485 to RS232 Converter

It is a converter that converts the rs232 communication port to rs485 communication port. It needs the separate power supply to convert the data. At rs485 side one connection is for power supply, two connections for an ground, and remaining two are for rs485A and rs485B.

3.1.2 GSM Module

Fig.2 GSM Circuit Diagram

This GSM Modem can accept any GSM network operator SIM card and act just like a mobile phone with its own unique phone number in it. Advantage of using this modem will be that you can use its RS232 port to communicate and develop embedded applications. Most of applications like data transfer, SMS Control, remote logging and control can be developed easily.

The modem can either be connected to PC serial port directly or to any microcontroller or PLC. It can be used to send and receive SMS . They can be a also used in GPRS mode to connect to internet and do many applications for data control and logging. In GPRS mode you can also connect to any remote FTP server and upload files for data logging.

3.1.3 Delta PLC DVP10SX

The name itself suggests the type of PLC and I/O it provides like DVP is a series name, 10 stands for (6+4) 6 inputs and 4 outputs, SX series as shown in fig 4. The delta PLC is cheaper than other brands of the PLC and easy to configure with any application of industry as well.

3.2 Sensors

3.2.1 Pressure Sensor

Pressure sensors have been in demand since the advent of the steam age. In such sensors are used daily to monitor the pressure of fluids in engines, pipes, hydraulics. Some specialized sensors are also used to determine the pressure of gases or solids. A typical pressure sensor is about a cubic inch in sizes, some may be a hundred or more times smaller, example those used in micro electromechanical systems.

3.2.2. Float Sensor

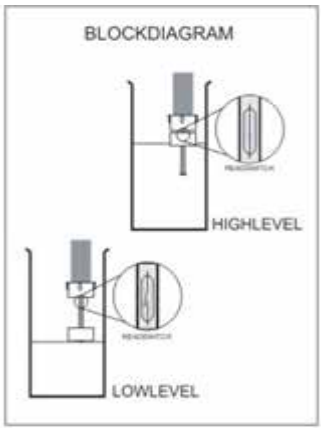

Fig.3 Float sensor working Diagram

Here the principle behind these mechanical, cable, magnetic and other float level sensors are involves the opening or closing of an mechanical switches, and also either by direct contact with their switches, or magnetic operation of a reeds. With an magnetically actuated float level sensors, it switching occurs when a permanent magnet is sealed inside a level float rises or falls to the actuation level on it.

With a mechanically actuated float level, switching take places as a result of the movement on float against a miniature of (micro) switches. For an both mechanical and magnetic float sensor, temperature, chemical compatibility, specific gravity (density), and viscosity affect the selection of the stem and the float.

3.2.3 Solenoid Valve

Solenoid valve is an electromechanically functioned valve for a controlling process. These valves are controlled by it electric current and through a solenoid: in a such case of two-port valve has flow is switched either on or off; and also in the case of a three-port valve, here outflow is switched in between depends on two outlet ports. Multiple of solenoid valves can also to be placed together on manifold.

And solenoid valves are the most often used control elements in their fluidics. From tasks are to be shut off, dose, release, distribute or mix fluids. These are found in several application areas. Solenoids offer fast and safe switching, long service life, high reliability, good medium compatibility of materials used, low controlling power and compact designs.

Besides the plunger-type actuator which is used most frequently, pivoted-armature actuators and rocker actuators are also used.

IV. SIMULATION & RESULT

Hence the programming sides first have to configure the PLC in a communication mode for communication purposes and it is usual part for all types of PLC for communication. And that next have to SET as memory bit for every an AT commands to communicate with their GSM module. After that enter the code of hex for all that command including a message that want to a send to the mobile.

Similarly should load their program in corresponding PLC and connect their RS485 to RS232 converter at RS485 terminal is to be provided in these PLC and at other end of the cable should connected to RS232 cable and whose another end of cable will be connected to a GSM module.

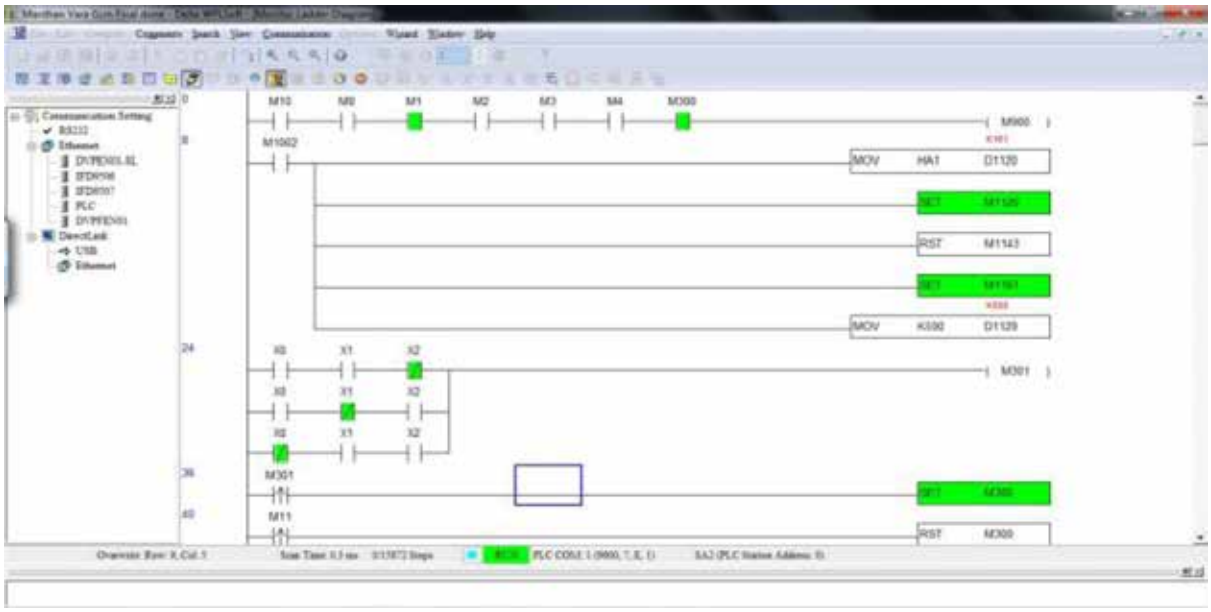

Fig 4 RUN mode of Program

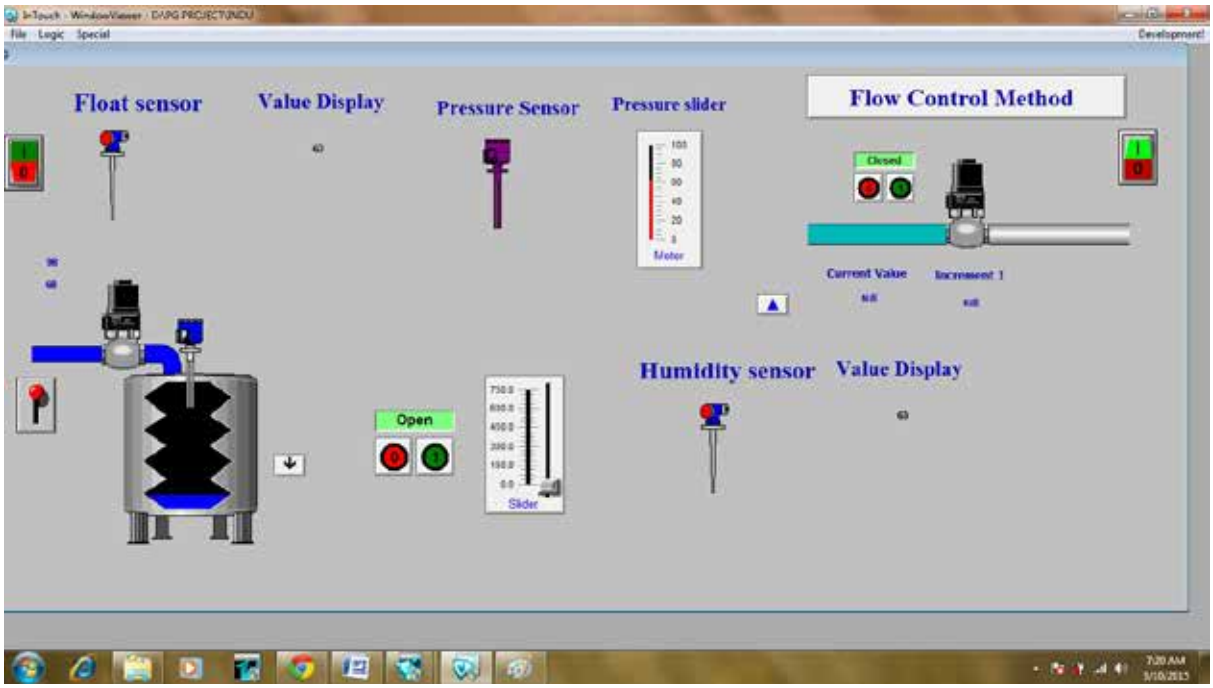

Fig 5 RUN mode in INTOUCH HMI tool

Fig 4 & Fig 5 shows their RUN mode in application mode & simulation of Run mode in INTOUCH HMI tool software.

4.1 Application

- Gardens maintenance sectors and others irrigation plants cultivation sectors are also to be adopted.

4.2 Future Enhancement

In this future it can extend their scope of PLC for wireless application by interfacing ZIGBEE module with PLC and it can get their same result as ZIGBEE modules interfaced with controller. By adding additional parameters of some sensors it improves their performance of these systems.

V. CONCLUSION

From these simulations shown above it can conclude that interfacing of GSM and RF module with PLC is done successfully and these can use it at any PLC based industry for wirelessly controlling and monitoring of industry process and also they can use it for agriculture processes are based on PLC.

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A STUDY ON PERCEPTION OF UG AND PG STUDENTS REGARDING TEACHING TECHNIQUES IN CLASSROOM WITH REFERENCE TO SELECTED COLLEGES OF BELTHANGADY TALUK-D.K

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ABSTRACT

As far as the education system is considered teaching technique is considered as important element of system. Among number of technique blackboard and Power Point Templates(PPT)has become a natural choice in order to win student engagement and motivation to learn.The study is basically aimed at to know the perception of students on teaching technique. For the purpose of study students who are perusing under-graduation and Post-Graduation in selected colleges of Belthangady has been considered. The research reveals that PPT will be useful for theory subjects and blackboards will be useful for the purpose of practical subjects. The study reveals that concentration level of students will be more in blackboard teaching technique as compared to PPT and students are. The researcher feels that findings of the study has got a kind of direction in discussing the real condition of students with and the suggestion which has given in the study may fetch some value if it is brought into practice.

Key words: PPT, Blackboard, Technique, Students, Lecturing

I.INTRODUCTION

When we talk about teaching methods generally it will be divides into three groups; one group favours the traditional teaching method, second group favours modern teaching method and third group is one which supports combination of both for effective teaching[1] . A sound education system is the perquisite for the development of any nation. This is a well-known fact that our education system still relies on traditional method of blackboard and there is a need to combine the traditional teaching with modern teaching aid i.e. PPT for a better and advanced education system. Thus the study is an attempt to know the views of students of Belthangadytaluk regarding teaching technique.

II.OBJECTIVES

1. To study the perception of students on teaching technique
2. To understand the students attitude toward traditional and modern teaching technique.

III.RESEARCH METHODOLOGY

Data collection:

For the purpose of study both primary and secondary data has been collected. Primary data has obtained from distribution of questionnaires and secondary data through published sources.

Sample size:

50 samples are selected randomly of UG and PG students of selected colleges and information has been collected through distribution of questionnaire to students.

Limitation:

1. The study has been conducted only in selected colleges of Belthangadytaluk.
2. Perception of lecturers or teachers has been not taken into consideration.
3. The study confines only to make the comparison between blackboard and PPT
4.

IV.DATA ANALYSIS AND INTERPRETATIONS

The survey results are organized as follows. In the first section, the demographic profile of respondents is presented. Where this section has classified into categories, where 50 students respond is taken into consideration and their perception regarding teaching technique has been analyzed.

4.1. Demographic Profiles of the Respondents

Table.1:

Age	**Particular**	**Frequency**	**Percentage**
	18-20	30	60
	21-23	20	40
	Total	**50**	**100**
Gender	**Particulars**	**Frequency**	**Percentage**
	Male	26	52
	Female	24	48
	Total	**50**	**100**
Stream	**Particulars**	**Frequency**	**Percentage**
	Commerce	20	40
	Arts	15	30
	Science	15	30
	Total	**50**	**100**

Source: Survey

Table .1 reveals the demographic profile of the students who are responded. On the basis of demographicprofile we can make following analysis.

4.2. Comfortable mode of technique

Table.2

Particular	Frequency	Percentage
PPT	27	54
Blackboard	15	30
Lecturing	8	16
Total	**50**	**100**

Source: Survey

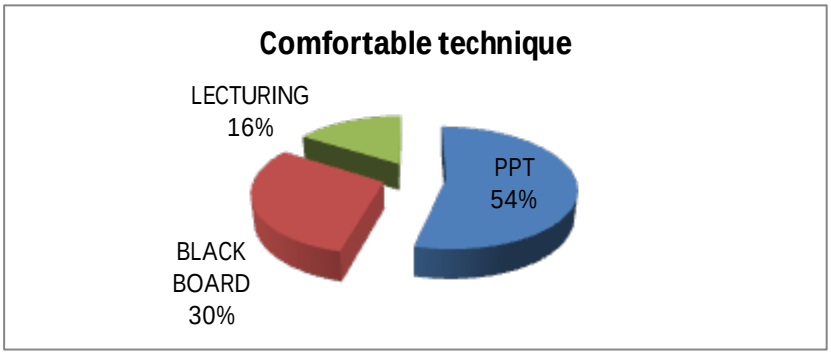

Figure 1

Table.2 shows that 54% of students do feel comfortable with the PPT technique; it may be because PPT will have an impact on the understanding level of students. 30% of students responded that they are comfortable with the blackboard teaching technique; it is mainly because the students have a traditional attachment toward blackboard. Only 16% of students do feel comfortable with lecturing as far as the comfort level is concerned, it is mainly depends upon the faculty or the subject they are learning.

4.3. Concentration level

4.3.1 Lecturing with PPT

Table.3.1

Particular	Frequency	Percentage
10-20 Min	26	52
21-40 Min	20	40
41-60 Min	4	8
Total	**50**	**100**

Source: Survey

4.3. 2Lecturing with blackboard

Table.3.2

Particular	**Frequency**	**Percentage**
10-20 Min	19	38
21-40 Min	24	48
41-60 Min	7	14
Total	**50**	**100**

Source: Survey

Table 3.1 shows the concentration level of students while using the PPT techniques at the time lecturing. 52% of students responded that they can concentrate up to 10-20 minutes; it is mainly because normally a human being can concentrate up to 20 minutes. 40% of students responded that they can concentrate till 20-40 minutes. Only 8% of students feel that they can concentrate up to 60 minutes.

Table 3.2 shows the concentration level or grasping capacity of students at the time of lecturing using blackboard. 38% of students do feel that they can concentrate up to 20 minutes. 48% of students do feel that they can concentrate up to 40 minutes. 14% of students feel that they can concentrate upto 60 minutes.

From the Table 3.1 and 3.2 it clear that, students have more concentration power or grasping power in blackboard as compared to PPT while lecturing.

4.3.4 Suitable Technique for the Purpose of practical Subject

Table.4

Particular	**Frequency**	**Percentage**
PPT	5	10
Blackboard	45	90
Total	**50**	**100**

Source: Survey

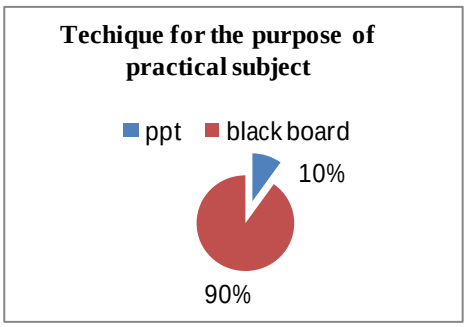

Figure 2

The respondents were asked about suitable technique for the purpose of practical subjects. 90% 0f students responded that blackboard will suitable for the better understanding purpose, it is mainly because practical subject need some kind clarification and it will be easy to solve the practical sums or problems. Only 10% of students do feel comfortable with PPT, as they prefer PPT for the purpose if practical subject.

4.3.5 Suitable Technique for the Purpose of Theory Subject

Table.5

Particular	**Frequency**	**Percentage**
PPT	40	80
Blackboard	10	20
Total	**50**	**100**

Source: Survey

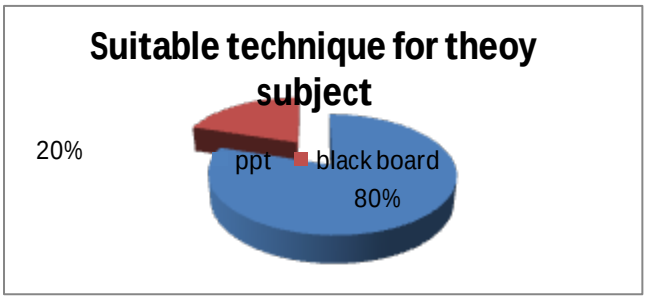

Figure 3

The respondents were asked about suitable technique for the purpose of theory subjects. 80% 0f students responded that PPT will suitable for the purpose of better understanding, it is mainly because theory subject need some kind fascinating tool to make the subject interesting. Only 20% of students do feel comfortable with Blackboard, as they prefer Blackboard for the purpose theory subjects and they have traditional mindset toward blackboard**.**

4.3.6 Suitable technique to take notes

Table.6

Particular	**Frequency**	**Percentage**
PPT	38	76
Blackboard	12	24
Total	**50**	**100**

Source: Survey

The Table.6 shows the response of students about suitable mode for the purpose of taking notes. 76% of students feel that PPT will suitable for the purpose of taking notes. It is mainly because PPT will have some kind of clearance

in presentation when it comes to technical aspects. There will not any problems like handwriting issue. Remaining 24% of students feel that blackboard will be useful in taking notes as compared to PPT.

4.3.7 Use of inclusion of clipart, image or video in PPT

Table.7

Particular	Frequency	Percentage
Yes	46	92
No	1	2
Sometimes	3	6
Total	**50**	**100**

Source: Survey

Table.7 shows the response of students about useful of clipart, image and videos in PPT. 92% of students responded 'Yes' when it is the matter of including image or video. IT is mainly because these things will make the subject interesting and can make the subject a better thing to learn. Only 6% of studentsresponded that it will be useful 'Sometime' Remaining 2% responded with'No'.

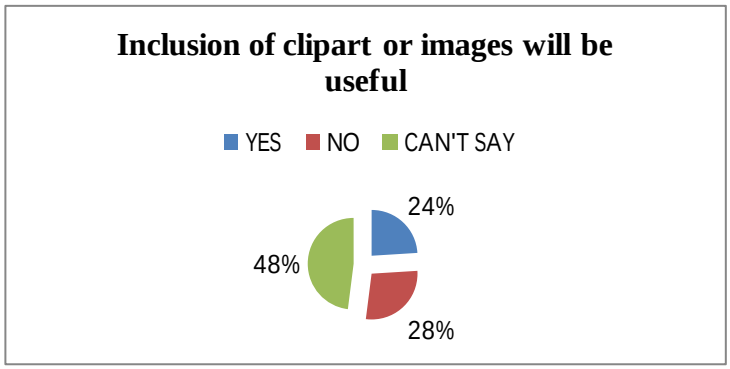

Figure 4

4.3.8 Satisfactory mode in scoring marks or grade

PPT **Table.8.1**

Particular	Frequency	Percentage
Highly Satisfied	10	20
Satisfied	24	48
Dissatisfied	16	32
Total	**50**	**100**

Source: Survey

Blackboard **Table.8.2**

Particular	Frequency	Percentage
Highly Satisfied	26	52
Satisfied	15	30
Dissatisfied	9	18
Total	**50**	**100**

Source:Survey

Table 8.1 and 8.2 it is clear more number of students are highly satisfied with blackboard technique as far as scoring marks or grade is concerned. It is mainly because more number of students brought up in such an environment that is of traditional technique. As far as table 8.1 is concerned more than 30% of students are dissatisfied with PPT as far as scoring marks is concerned. It is the perception each students that will make an impact.

4.3.9 Effect on interactive level of students while using PPT

Table.9

Particular	Frequency	Percentage
Yes	12	24
No	14	28
Can't Say	24	48
Total	**50**	**100**

Source: Survey

Table.9 shows about effect on interactive level of students while using PPT. 48% of students responded with 'Can't say', as students are in a dilemma about to confirm the matter. 24% of students feel that it will effect on the interaction level of students. Remaining 28% of students feel that it will not effect on interaction level.

4.3.10. Problems in traditional blackboard

Table.10

Particular	Frequency	Percentage
Dust	20	40
Handwriting	7	14
Visibility	4	8
No Problem	19	38
Total	**50**	**100**

Source: Survey

The respondents asked about problems faced by them in traditional blackboard. More than 60% of students do feel some kinds of problems like dust or handwriting problem or visibility problem. Remaining 38% of students don't

have any problem as far as the blackboard is concerned. It is clear that there is a need of improvisation in this blackboard technique.

4.3.11 General expectations

Table.11

Particular	Frequency	Percentage
There should be an interaction session in every class	16	32
There should be an subject related activity in some classes	24	48
There should an scope of discussion about general issue	10	20
Total	**50**	**100**

Source: Survey

V. FINDINGS

1. The study revealed that 54% of students do feel comfortable with PPT as compared to blackboard
2. Concentration level of student in will be more if there is use of blackboard as compared PPT.
3. The study revealed that blackboard will be more useful for the purpose of understanding if the subject is practical and PPT will be useful for the purpose of better understanding the theory subject.
4. It is found that PPT will be useful for taking notes during class.
5. More than 90% of students do feel that it will be useful to include clipart, video and image in PPT for the purpose of better understanding the concept.
6. Most of students do face some kinds of problems with blackboard as far as dust or visibility is concerned.

VI. SUGESTIONS

1. Lecturers need to make an interaction with the students in every class while they are using PPT in order to make the classes lively and in order to catch the concentration level during class.
2. As far as the practical subject is concerned lecturers must use the technique of blackboard.
3. As far as the theory subject is concerned lecturers must use the technique of PPT.
4. It will be helpful if there is a inclusion of clipart, image or video for the better understanding of concept.
5. There is a need for using the eco-friendly dust free chalk as far as the problem dust in blackboard is concerned.
6. Lecturers need to a make an attempt to grab the concentration of the students by the way of including video clips in PPT and display it after 20 minute session so that students find relax.
7. There should a subject related activity in some classes to make the subject as fascinating things to learn.

VII.CONCLUSION

The quality of the learning experience and outcomes requires a special concern not only with the methods of teaching but also with the ways in which the student uses his/her cognitive abilities. Successful teaching involves a variety of strategies and techniques for engaging, motivating and energizing students over and above merely presenting them with well-designed learning materials. As far as the teaching technique is considered PPT will be useful if there is a proper interaction with students is considered and to make the technique a boon.

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