



## GREEN HOUSE SURVALLANCE SYSTEM USING ZIGBEE

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### ABSTRACT

*This paper designs a novel wireless surveillance system in greenhouse, using smart phone in order to solve long-existing problems in traditional systems, such as high maintenance cost, low robustness and mobility, etc. The introduction remote based control has remarkable meaning in the design of greenhouse surveillance systems, as it could simplify the design and also extends the function. We here propose the well monitoring system in greenhouse using remote control as controller Application. In this system remote control will be operated by user for cutting the flower in the greenhouse with the help of scissor mounted on mechanical structure. The whole system will be operated by low power microcontroller Arduino.*

**Keywords:** -Green House, zigbee, wireless sensor network, surveillance system.

### INTRODUCTION

Previously, human labor plays major role in the monitoring farm and plants in the agriculture field. For some crucial plants such as vegetarian and flowers plants, which need 24 hours attention from human so there came an idea in mind about minimizing human efforts and providing that the plant quantities and qualities are controlled with proper management by the collected data and information from the fields. This will provide enormous foundation for future growth and future development of their plants in the green house. However, with the increasing size in farming areas, this type of manual practice is increases time consuming and cost of the labor [3]. The focus of Greenhouse automation division is the optimization of environmental conditions for better plant growth. The aim of the paper is to control the devices or equipment's from the remote place through a web page. The main advantage of this technique is that the devices connected to the web server need not store the offline data or have the software required to view the data. In this way the devices connected need not store or run the software whenever they want to view the data. All the required software and the data are stored in the web server and the Client devices need not store the data neither the software. Also the devices can view the required data anywhere from the world as these devices are connected via Internet. The nature and complexity of the software systems had changed significantly in the last 30 years. The previous applications run on single processor and produce fixed output .But with the advancement in the technology application are having the complex user interface and these applications run on the various systems simultaneous like applications which support client server architecture. Here all the devices, which are to be controlled, are connected to the relays, there are four relays connected and are controlled automatically for different parameters like Temperature,



Humidity, Soil Moisture and Light Intensity [12]. Our system consists of basically two main units User's smart phone.

- A buggy Unit.
- We are going to develop a remote control which will be operated by user for cutting the flowers in the greenhouse with the help of that buggy. Remote control will have total six buttons on the screen. All buttons are used to give commands to the buggy.

## II. HEADINGS

1. Greenhouse surveillance system using zigbee is a robot which is used for flower cutting purpose in the greenhouse which can also be used for guarding purpose
2. With this project we are about to reduce overall labouring cost, and with this we can increase our profit
3. This robo can work continuously with any pause and repeatedly

## III. INDENTATIONS AND EQUATIONS

**Arduino**-The Arduino Uno is a microcontroller board based on the ATmega328 (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

**Relay Drive**-.A relay is an **electromagnetic** switch operated by a relatively small electric current that can turn on or off a much larger electric current. The heart of a relay is an electromagnet (a coil of wire that becomes a temporary magnet when electricity flows through it).

**X-Bee**-The Xbee family of embedded RF modules provides OEMs with a common footprint shared by multiple platforms, including multipoint and zigbee/mesh topologies, and both 2.4GHz and 900 MHz solutions. It has 802.15.4/multipoint network topologies, 2.4GHz for worldwide deployment, 900MHz for long range deployment.

**4x4 Keyboard**- 4x4 keypad is used for loading numeric's into the microcontroller. It consists of 16 buttons arranged in the form of an array containing 4 lines and 4 columns. It acts as a remote controller to the mechanical structure which consist buggy.

## IV. FIGURES AND TABLES

### Block Diagram

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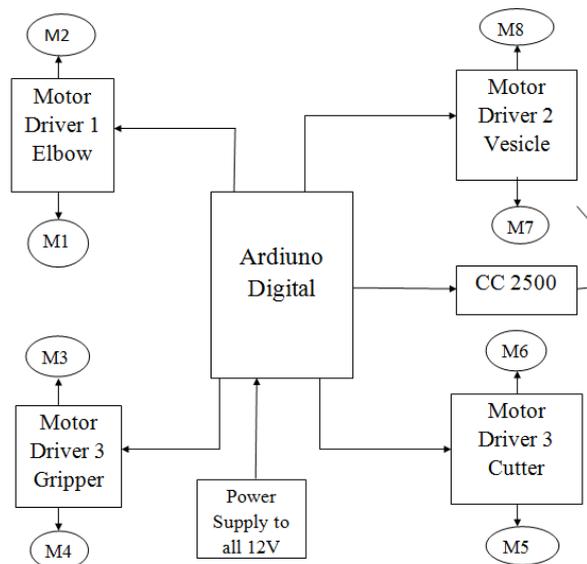


Fig 1: Block Diagram of receiver of greenhouse system

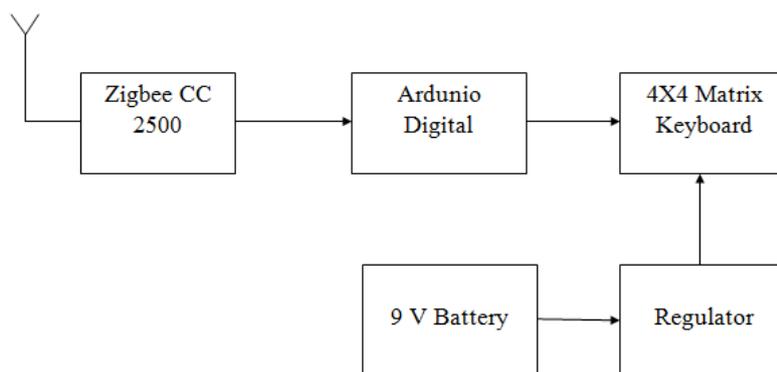


Fig 2: Block Diagram of transmitter of greenhouse surveillance

Fig.1 shows the block diagram of receiver which is actually robotic vehicle along with the buggy like a structure in order to cut the flowers in a greenhouse. It consist of 4 motor drivers 1 st motor driver is used for elbow 2nd is for gripper 3 rd for the cutter and the last motor driver is used for robotic vehicle. Receiver requires a power supply of about 12v. In order to execute the command transmitted by the receiver. Receiver section also consists of arduino microcontroller in order to control entire receiver part.

Fig.2 shows the receiver section it consist of zigbeereceiver module, one arduino board ,9v power supply , regulator and a 4x4 matrix keyboard.

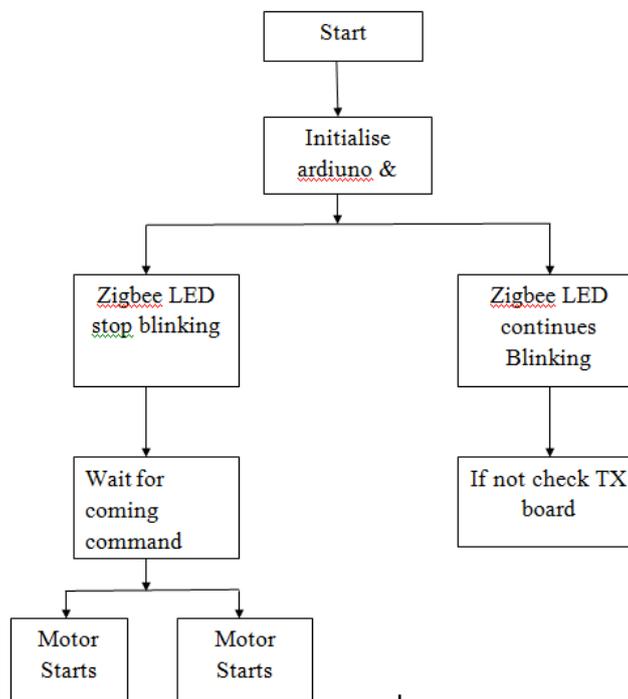


Fig.4 Receiver work flow

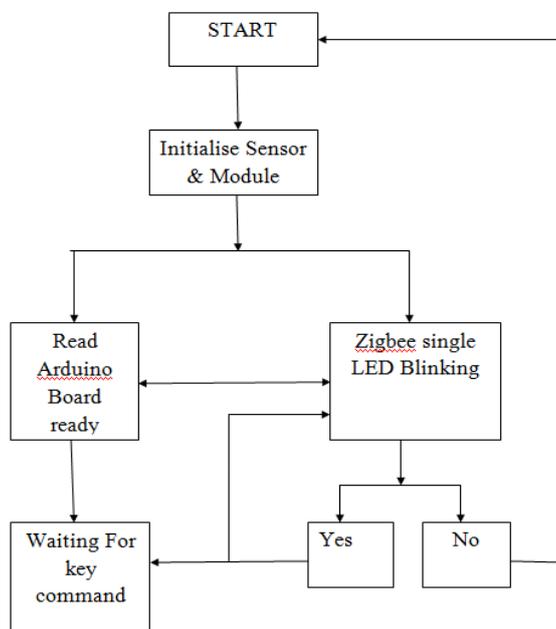


Fig.4 Transmitter work flow

**V.CONCLUSION**

In this way we can use this flower cutting robot for greenhouse, gardening purpose so we can reduce labouring cost,increase profitability thus overall this robo is useful for large gardens,greenhouse,it can work more

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efficiently with high accuracy that takes less time to complete the specified task. So with some improvements this project can be a best model for future greenhouse development.

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