

## **PRESENCE OF ACTIVE MOBILE PHONES AND HIDDEN CAMERA DETECTION**

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### **ABSTRACT**

*In our day to day life the usage of mobile phones has been increased in restricted area such as exam venues, places of important meeting, offices, conference halls, prison etc. and the hidden wireless camera in trial rooms and hotels, public toilets. The radio frequency signals are transmitted from wireless camera and mobile phone during the video transmission, incoming call and outgoing call, text messages from one gadget to another.*

*The detector will detect the transmitted signal and then it is gives as input to AT mega 8 microcontroller.as soon as the Arduino microcontroller receives the signal, it will turn ON the beep alarm and the information will be displayed on the LCD display and also sends the message like mobile detected with location, room number etc. to the mobile number stored in the microcontroller by using the GSM module.*

### **I.INTRODUCTION**

In recent years, there has been increasing issues relating to the use of mobile phones and camera in restricted areas. The mobile phone provides many ways for a student to cheat in an examination hall. The mobile phones are strictly prohibited inside the examination rooms. One of the existing approaches is to ensure the students. Are free of mobile phones in examination hall is by manual inspection in the entrance. Manual inspection cannot fully reveal the students having mobile phones all the time. These devices will ensures the connectivity between a student sitting inside the hall and outsiders have been considerably increased a burden to invigilators to ensure that malpractices are not committed during exams.Sometimes there are more possibilities for leaking the question papers. Here we try to prohibit the unauthorized use of mobile phones by using a detector, that sense the presence of an activate mobile phone signals radiated by them and also the wireless camera which radiates RF signal. Efforts have been put in place to tackle this issue but they all have their own shortcomings. The circuit can detect the signals during video or audio transmission from hidden camera and microphones also incoming calls and outgoing calls, messages and video transmission from mobile phone. The detector detects the RF signal and the signal information is indicated by using a beep alarm and displayed in LCD module, and also it is informed to the administrator number which is programmed in microcontroller. The alarm continues until the RF signal transmission get off The transmission frequency range of the mobile phone signal is about 0.9 to 3

# First International Conference on *NexGen* Technologies

Sengunthar Engineering College Tiruchengode, Namakkal Dist. Tamilnadu (India)

05<sup>th</sup> - 06<sup>th</sup> January 2018, [www.conferenceworld.in](http://www.conferenceworld.in)

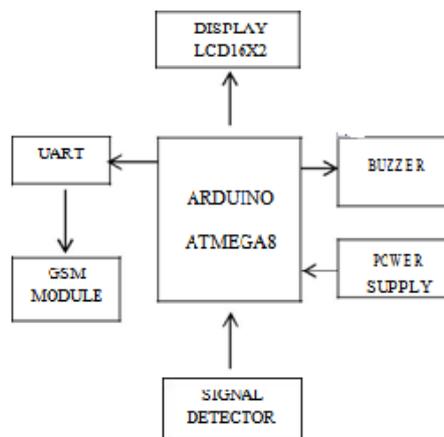
ISBN: 978-93-86171-90-0

GHz and the wavelength of about 3.3 to 10cm. so there is a need to design a circuit that detects GHz frequency signals.

## II.SYSTEM DESIGN

The main purpose of the overall system is to detect the RF bugs present in a room. The circuit detects the RF signal and report to the administrator number stored in microcontroller. And the RF signal radiated from hidden camera is detected and it is displayed with the help of LCD module.

The system consists of RF signal detector, ATmega 8 microcontroller, LCD module, GSM module, and buzzer Alarm

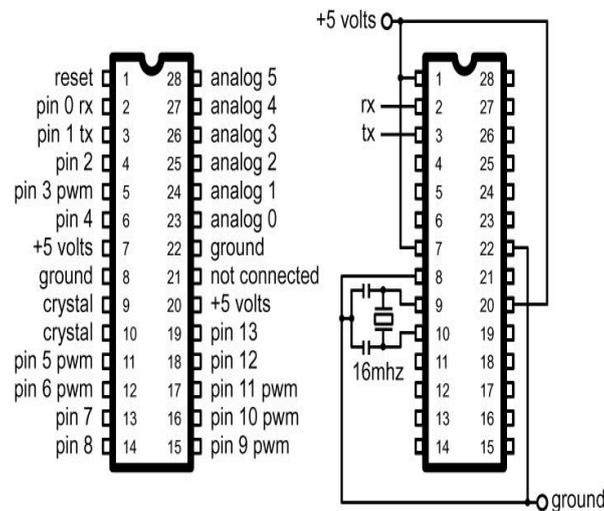


The basic principle of mobile detector is the idea of using disc capacitor to detect the cell phone signal with the frequency range 0.9 to 3GHz within 1.5 meter radius. The capacitor and the lead acts as a loop antenna, which is capable of receiving the transmitting signal from the activated mobile phone and the wireless camera which is transmitting the live video in a room.

The signal is received by the RF detector by mutual induction between the capacitor and lead. The signal is given as an input to the ATMEGA 8 Microcontroller, there the signal is rectified and then it is sent for further process. The signal received is an analog signal. The analog signal is converted into the digital signal using Analog to Digital converter, this A/D converter is induced in the microcontroller. It is programmed by using Arduino software.

### B. Arduino microcontroller

**Arduino** consists of both a physical programmable circuit board (often referred to as a **microcontroller**) and a piece of software, or IDE (Integrated Development Environment) that runs on your computer, used to write and upload computer code to the physical board



**D. Telescopic antenna**

An antenna whose receiving elements such as arms of dipole is made in forms of a flexible system of metal tubes of approximately equal length. Changing the length of the antenna elements during tuning and let the size of antenna to be reduced and when is not in the operation. These antennas are used predominantly in incorporation with radio receivers, radio transmitters and television receivers installed in moving objects.

**E. GSM Module(SIM 900)**

GSM module is used here to send information to the registered mobile number in the controller. For cost effective and to have small dimension SIM Com module is induced with single chip processor affiliating AMR 926EJ-S and quad band –GSM /GPRS module of SMT type.

The RF detector detects the RF signal and sends to microcontroller to transmission signal into digital signal. And the microcontroller sends the information to the LCD and to GSM module. Here the circuit uses disc capacitor 0.22µF, in order to capture the RF signal transmitted from wireless hidden camera and mobile phones.

Op-amp IC CA3130 is used for current to voltage conversion with capacitor C3 which is connect in between inverting and non-inverting inputs of the op-amp. The P-channel MOSFET transistors present in the input to provide very high input impedance, very low current and high speed performance IC-555 timer is a highly stable controller which is capable of producing accurate timing pulses. And the monostable operation the time delay is controlled by the external resistor and one capacitor. With an astable operation the frequency and duty cycle are controlled by two external resistors and one capacitor. Capacitor C3 creates a field and stores energy. Then transfer the stored energy into current which is input to the IC1 and convert into voltage. Capacitor C4 with the resistor R1, keeps the non-inverting input stable for high state output. Capacitor C4 discharges and the feedback resistor R3 will make the inverting input high for high output. Capacitor C5 (45pF) strobe and null of IC1 for the phase compensation and the gain control to get better frequency response..The microcontroller gets the input RF signal and performs the operation programmed in it. It sends the information to LCD module and it is

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displayed as “MOBILE DETECTED” or “CAMERA DETECTED”. And it report to the administrator mobile number stored in the controller. And alarm sounds until it stops receiving the RF signal

### III.FUTURE SCOPE

Trying to increase the detecting range by using the preamplifier stage using JFET or MOSFET transistor used in an interface between the capacitor and IC. Being able to detect the Bluetooth transfer

Current system only detects the 2G/3G transmission signals. To determine the exact position of mobile phone and camera hidden in room.

### IV. CONCLUSION

Mobile technology and wireless camera gains new data capabilities rapidly. Features like direct transmission of video from small wireless camera to other devices. A mobile phone uses many different transmission protocols, which dictates how cellular phones communicate with towers. Many institutions depend on keeping information secured and to build fortresses imploring methods to check every one. It requires a lot of manpower. This detector sense the signal with 1.5 meter radius to prevent the malpractices in restricted areas.

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