MOBILE SIGNAL JAMMER

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I. ABSTRACT

Mobile jammer is used to prevent mobile phones from receiving or transmitting signals with the base stations. Mobile jammers effectively disable mobile phones within the defined regulated zones without causing any interference to other communication means. Mobile jammers can be used in practically any location, but are used in places where a phone call would be particularly disruptive like temples, libraries, hospitals, cinema halls, schools & colleges etc.Aswith other radio jamming, mobile jammers block mobile phone use by sending out radio waves along the same frequencies that mobile phones use. This causes enough interference with the communication between mobile phones and communicating towers to render the phones unusable. Upon activating mobile jammers, all mobile phones will indicate "NO NETWORK". Incoming calls are blocked as if the mobile phone were off. When the mobile jammers are turned off, all mobile phones will automatically re-establish communications and provide full service

II. INTRODUCTION

Mobile jammer is used to prevent mobile phones from receiving or transmitting signals with the base stations. Mobile jammers effectively disable mobile phones within the defined regulated zones without causing any interference to other communication means Mobile jammers can be used in practically any location, but are used in places where a phone call would be particularly disruptive like Temples, Libraries, Hospitals, Cinema halls, schools & colleges etc. As with other radio jamming, mobile jammers block mobile phone use by sending out radio waves along the same frequencies that mobile phones use. This causes enough interference with the communication between mobile phones and communicating towers to render the phones unusable. Upon activating mobile jammers, all mobile phones will indicate "NO NETWORK". Incoming calls are blocked as if the mobile phone were off. When the mobile jammers are turned off, all mobile phones will automatically re-establish communications and provide full service. The activation and deactivation time schedules can be programmed with microcontroller.This project uses regulated 5V, 500mA power supply. Unregulated 12V DC is used for relay. 7805 three terminal voltage regulators are used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac output of secondary of 230/12V step down transformer.The cell phone detector can sense the presence of an activated mobile cell phone from a distance of about one and half meters. So, it can be used to prevent use of mobile phone in the examination halls, confidential rooms, etc. it is also useful for detecting the use of mobile phone for spying and unauthorized video transmission.

III. LITERATURE SURVEY

There are several ways to jam an RF device. The three most common techniques can be categorized as follows:

1. <u>Spoofing</u>: - In this kind of jamming, the device forces the mobile to turn off itself. This type is very difficult to be implemented since the jamming device first detects any mobile phone in a specific area, then the device sends the signal to disable the mobile phone. Some types of this technique can detect if a nearby mobile phone is there and sends a message to tell the user to switch the phone to the silent mode (Intelligent Beacon Disablers).

2. Shielding Attacks: - This is known as TEMPEST or EMF shielding. This kind requires closing an area in a faraday cage so that any device inside this cage cannot transmit or receive RF signal from outside of the cage. This area can be as large as buildings, for example.

3. Denial of Service: - This technique is referred to DOS. In this technique, the device transmits a noise signal at the same operating frequency of the mobile phone in order to decrease the signal-to-noise ratio (SNR) of the mobile under its minimum value. This kind of jamming technique is the simplest one since the device is always on. Our device is of this type.
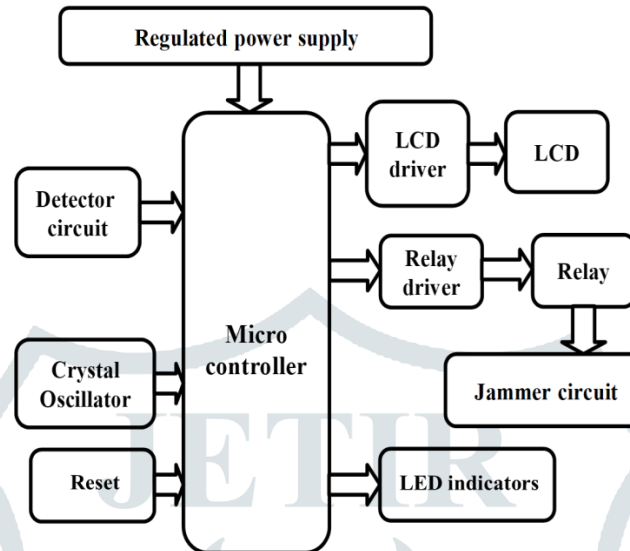
IV. BLOCK DIAGRAM:

Figure1: Block diagramofjammerwithcontroller

The main parts of this schematic diagram are:

1) **REGULATED POWER SUPPLY:** A variable regulated power supply block shown in Figure. Most digital logic circuits and processors need a 5-volt power supply. To use these parts, we need to build a regulated 5-volt source. To make a 5-volt power supply, we use a LM7805 voltage regulator IC.

2) **MICROCONTROLLER:** Arduino is an open source computer hardware and software that designs single-board microcontrollers and microcontroller kits for building digital devices and interactive objects that can sense and control objects in the physical and digital world. The project's products are distributed as open-source hardware and software, which are licensed under the GNU Lesser General Public License (LGPL).

Arduino Uno technical specification:

Microcontroller	ATmega328P – 8 bit AVR family microcontroller
Operating Voltage	5V
Recommended Input Voltage	7-12V
Input Voltage Limits	6-20V
Analog Input Pins	6 (A0 – A5)
Digital I/O Pins	14 (Out of which 6 provide PWM output)
DC Current on I/O Pins	40 mA
DC Current on 3.3V Pin	50 mA
Flash Memory	32 KB (0.5 KB is used for Bootloader)
SRAM	2 KB
EEPROM	1 KB
Frequency (Clock Speed)	16 MHz

3) **RELAY:**The coil of a relay passes a relatively large current, typically 30mA for a 12Vrelay, but it can be as much as 100mA for relays designed to operate from lower voltages. Most ICs (chips) cannot provide this current and transistors usually used to amplify the small IC current to the larger value required for the relay coil. Relays are usually SPDT (single pole double throw) or DPDT (double pole double throw) but they can have many more sets of switch contacts, for example relays with 4 sets of changeover contacts are readily available. Relays used in our project have got a Coil rating of 12V.

4) **DETECTOR CIRCUIT:**Mobile phone uses RF with a wavelength of 30cm at 872 to 2170 MHz. That is the signal is high frequency with huge energy. When the mobile phone is active, it transmits the signal in the form of sine wave which passes through the space. The encoded audio/video signal contains electromagnetic radiation which is picked up by the receiver in the base station
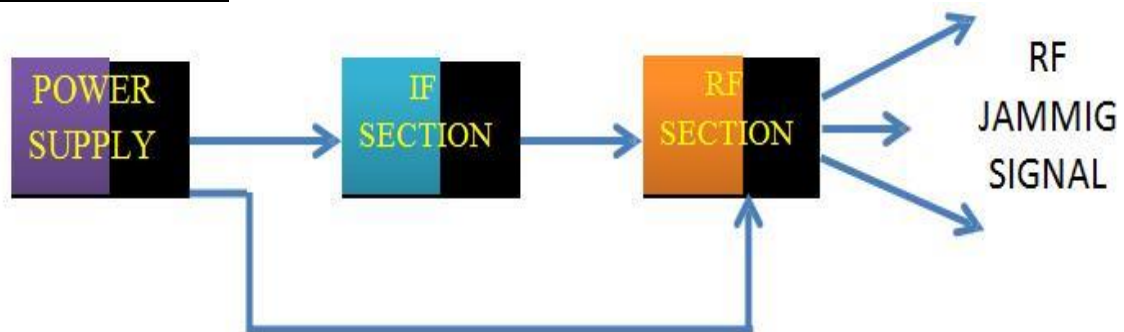
5) **JAMMER BLOCK:**

Figure2:Jamming BlockDiagram

➤ **POWER SUPPLY**:

Transformer: Is used to transform the 220VAC to other levels of voltages.
Rectification: This part is to convert the AC voltage to a DC one. We have two methods for rectification: Half wave-rectification: the output voltage appears only during positive cycles of the input signal. Full wave –rectification: a rectified output voltage occurs during both the positive and negative cycles of the input signal.
The Filter: Used to eliminate the fluctuations in the output of the full wave rectifier—eliminate the noise‖ so that a constant DC voltage is produced. This filter is just a large capacitor used to minimize the ripple in the output.

➤ **IF SECTION:**

TheIFsection consistsofthreemain parts
1. Trianglewavegenerator.(To tunetheVCO in the RFsection)
2. Noise generator (provides theoutput noise).
3. Signal mixer and DC offset circuits (to mix the triangle and the noise waves).

➤ **RF SECTION**

1. Voltage Controlled Oscillator (VCO): The voltage controlled oscillator (VCO) is the heart of the RF-section. It is the device that generates the RF signal which will interfere with the cell phone. The output of the VCO has a frequency which is proportional to the input voltage, thus, we can control the output frequency by changing the input voltage.
2. RFPoweramplifier: Since 5 dBm output powers from the VCO do not achieve the desired output power of the GSM jammer, we had to add an amplifier with a suitable gain to increase the VCO output to 34 dBM. We obtained our amplifier IC (PF08109B) from an old mobile as it was the most suitable, cheapest and easiest way to get one.
3. Antenna: A proper antenna is necessary to transmit the jamming signal. In order to have optimal power transfer, the antenna system must be matched to the transmission system. In this project, we used two 1/4 wavelength monopole antennas, with 50 Ω input impedance so that the antennas arematched to the system. We used monopole antenna since the radiation pattern is omni-directional.
    DCS antenna Specifications:
      1. Frequency: 1700-1900MHz
      2. Input impedance 50Ω

GSM 900 antenna Specifications:
1. Frequency: 850MHz-1GHz
2. Input impedance 50Ω
3. VSWR<2

V. ADVANTAGES:

1. Easy to operate.
2. Low power consumption.
3. Efficient design.
4. Eliminates button operations.
5. No need for training.
6. Fast response.
7. Sophisticated security

VI. DISADVANTAGES:

1. Cost oriented.
2. Requires specialhardware
3. People feel inconvenience.
4. V.I.P. 'smaylosesome important calls.

VII. APPLICATIONS:

Governments, enterprise's each kind of conference room: May avoid the handset ting disturbs and answers when the telephone breaking the leader to speak but interrupts its person to hold a meeting.

Armies, public security department's important conference rooms: Might avoid the attending personnel divulging the military and the government using the handset is secret, at present the new spy science and technology, already used the handset interception, the monitor environment sound, therefore to important conference place, it is necessary to take effective also of security the initiative.

Hospitals: Might avoid the goon machine-hour but causing doctor to the hospital precision instrument equipment disturbance to misdiagnose, has delayed the rescue patient, as well as was surgery doctor to answer the handset telephone disturbance attention, underwent the surgery to doctor to the patient to be extremely disadvantageous.

Courts: May avoid the handset ting the disturbance, maintains the court conference site the dignity and the sacredness.

Libraries, New Bookstore: May avoid the handset ting and answer the telephone the noise, builds to study the study peaceful environment

VIII. EXPECTED RESULT

The project "CellphoneRF Signal detector and Jammer" was designed to help for security reasons and a friendly hardware interaction for the user. The device is designed by interfacing mobile jammer and buttons. The activation and deactivation time schedules can be programmed with microcontroller.

IX. ACKNOWLEDGEMENT:

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