

# Arduino Based Mobile Phone Detection In Prohibited Areas

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*Abstract: The main objective behind developing this Smart mobile detector is to detect the presence and existence of cell phones in an area. It is mostly used in examination halls, secret rooms, and practically helpful in identifying the use of cell phones for spying and unapproved video transmission where the cell phones are not allowed. The cell phone detectors come with bugs which are meant to detect RF transmission signal. The moment this bug detects the RF transmission signal from an activated cell phone, the LED light started squinting. This blinking of light continues until the mobile phone is seen and switched off or until the RF transmission signal ceases.*

**Keywords:** LED, RF Transmission

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## I. INTRODUCTION

A cell phone is an electronic gadget that can make and get phone calls over a wide zone transmission radio-connect. An individual situated in a remote-spot to speak with an individual over the globe in a small amount of a second it made to conceivable. It gets conceivable when cell network is connected to the cell phone administrator framework. The Mobile Phones which are around certain zone can be detected, with the goal that it can anticipate utilization of cell phones in examination lobbies, classified rooms. To identify the nearness of phone so as to abstain from spying in secret condition. To build up a Mobile Phone Detector by outfitting the power of Arduino requiring little to no effort this gives adaptable and versatile engineering to mechanical computerization. It will give security and ability controlling and observing Mobile Phones. Reed Switch monitor Mobile Phones when it is switched on and off. Mostly it is required for monitoring transmitting signals. Different applications installed in a mobile phone could likewise be utilized by a student to cheat; such applications incorporate dictionaries and calculators. As innovation continues to progress, in like manner the students gain access to various advancements to commit scholastically deceptive demonstrations of swindling.. instructive destinations unattainable and forecasts a depressing future for any-general public. The rise of e-cheating has added to the difficulties of leading trustworthy and dependable examinations. Additionally, it abuses institutional directions, and it is a marker of the powerlessness of an educational foundation to give an educational procedure that offers measure up to open doors for all understudies to learn cheating adversely influences the exactness of the assessment procedure by including more wellsprings of blunders, which diminishes tests legitimacy and unwavering quality.

## II. FUNCTIONAL OVERVIEW

Mobile Phone Detector by outfitting the power of Arduino requiring little to no effort this gives adaptable and versatile engineering to mechanical computerization. It will give security and ability of controlling and observing Mobile Phones. Reed Switch monitor Mobile Phones when it is switched on and off. Mostly it is required for monitoring transmitting signals. Different applications installed in a mobile phone could likewise be utilized by a student to cheat; such applications incorporate dictionaries and calculators. As innovation continues to progress, in

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like manner the students gain access to various advancements to commit scholastically deceptive demonstrations of swindling. Bamboozling makes uncalled for rivalry among students in a class. Examination-misbehavior wrecks the establishment and texture of any educational framework. .It makes formal-appraisals temperamental, instructive destinations unattainable and forecasts a depressing future for any-general public. The rise of e-cheating has added to the difficulties of leading trustworthy and dependable examinations. Cheating in tests is a major issue that has negative-educational, social and mental impacts. Educationally, swindling or cheating is in opposition to the soul of training, particularly in building and advancing high-moral-qualities and frames of mind. Additionally, it abuses institutional directions, and it is a marker of the powerlessness of an educational foundation to give an educational procedure that offers measure up to open doors for all understudies to learn. What's more, cheating adversely influences the exactness of the assessment procedure by including more wellsprings of blunders, which diminishes tests legitimacy and unwavering quality. Essentially, cheating is mischief to get something one isn't qualified for. cheating influences students who swindled, yet in addition influences other students, as it compels them to make their life terrible in an out of line or in other words unfair system. Consistently for the most part, cheating conduct may persist after graduation. Mentally, swindling may ruin a student's qualities, possibly bringing about genuine mental issues, similar to sentiments of blame and disgrace. This, thusly, would negatively affect a student's sense of pride, confidence, dimension of inspiration, and learning-capacity. It is in this way that it reflects and grow better approaches for fighting rising advancements that could possibly be utilized for bamboozling in the examination.

**Things you need:**

To create the smart mobile detector you need the following stuff

- Arduno UNO IDE
- Languages are Embedded C
- Antenna
- RF Amplifier
- LNA -Low Noise Amplifier
- Mobile Phone
- LED

**III.DESIGN**

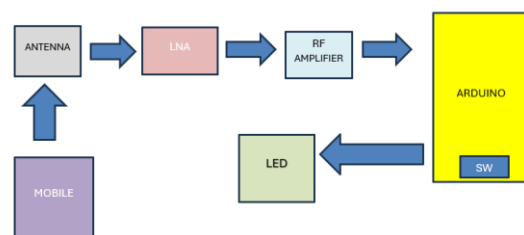


Fig.1 Block diagram of Mobile Detector

Table shows basic required objects for mobile detector and their functionality.

111Following things are required for design:

- Antenna(It detects the RF signal from mobile)
- LNA(Low Noise Amplifier)
- RF Amplifier
- Arduino UNO(used to dump and execute the code)
- LED(To blink the light when mobile detects)

1	Antenna	Detects the RF signal from mobile
2	LNA	It detects the mobile
3	RF Amplifier	It detects any signal is detected or not
4	Arduino	Used to dump the code
5	LED	To blink the light

Table 1: basic requirements

**Level 1 Design**

Mobile signals are sent to the antenna. Then the antenna sends to the Low Noise amplifier. That RF transmits the signals. Arduino will execute the code then LED will blink if mobile detects.

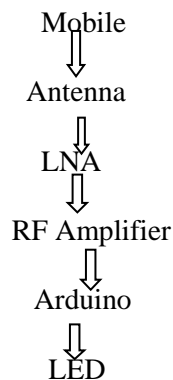


Fig 2: Basic structure of mobile detector

**Level 2 Design**

LNAs are found in radio communication systems, medical instruments and electronic test equipment. A typical LNA may supply a power gain of 100 (20 decibels (dB)) while decreasing the SNR by less than a factor of two (a 3 dB noise factor (NF)). Although LNAs are primarily concerned with weak signals that are just above the noise floor, they must also consider the presence of larger signals that cause intermodulation distortion.

**IV. WORKING**

The working of each components in mobile detector is explained in this section. Let's talk about them one by one:

**(1) Signal Detection to antenna:-**

Mobile signals are sent to the antenna .Then the antens tends to share the signals.It may pass to the other blocks.

Mobile Signals  $\Rightarrow$  Antenna

**(2) LNA**

LNAs are found in radio communication systems, medical instruments and electronic test equipment. A typical LNA may supply a power gain of 100 (20 decibels (dB)) while decreasing the SNR by less than a factor of two (a 3 dB noise factor (NF)). Although LNAs are primarily concerned with weak signals that are just above the noise floor, they must also consider the presence of larger signals that cause intermodulation distortion.

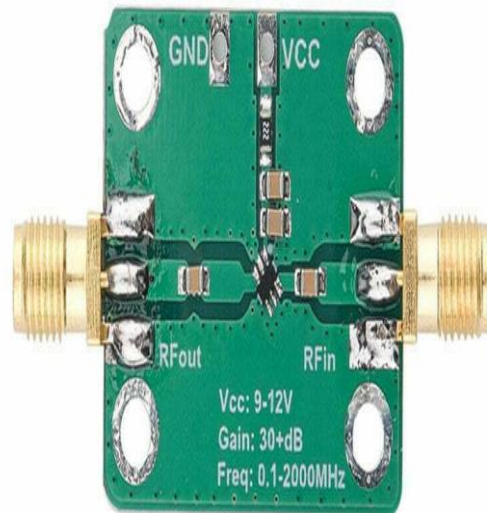


fig.3:LNA

**(2) Programming:-**

Download Arduino Integrated Design Environment (IDE) here (Most recent version: 1.6.5):

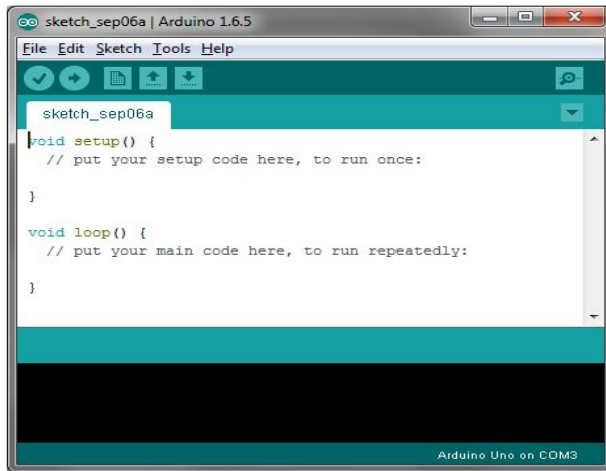


Fig 4:Arduino Board setup

You have to tell the Arduino IDE what board you are uploading to. Select the Tools pulldown menu and go to Board. This list is populated by default with the currently available Arduino Boards that are developed by Arduino. If you are using an Uno or an Uno-Compatible Clone (ex. Funduino, Sain Smart, IEIK, etc.), select Arduino Uno. If you are using another board/clone, select that board.

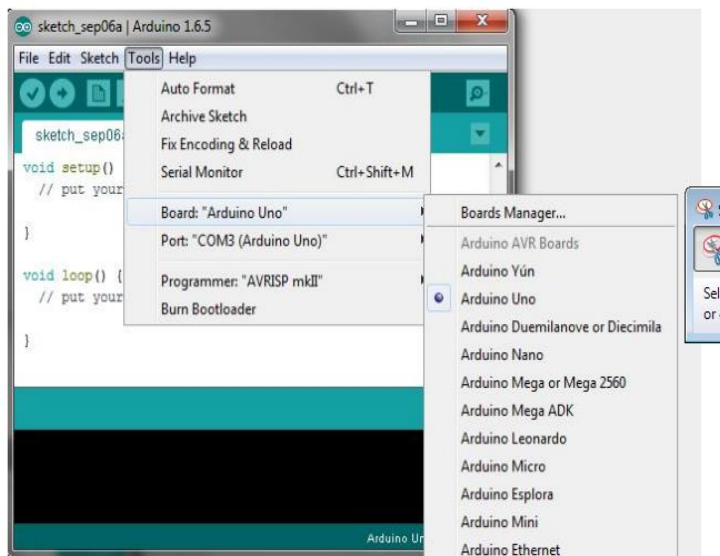


Fig.5 :Selecting Board

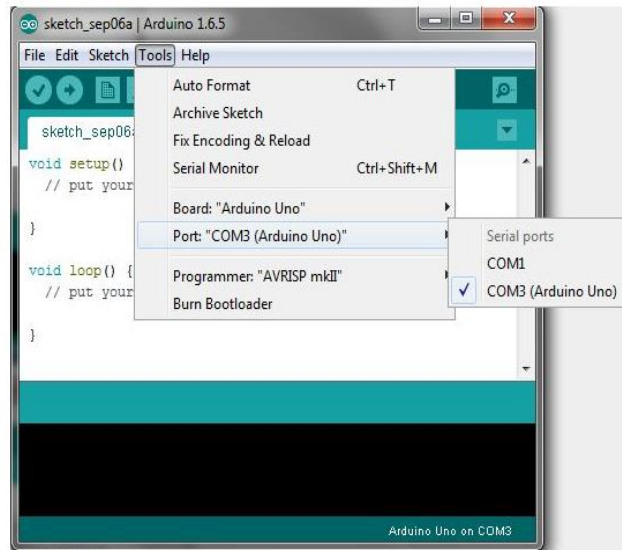


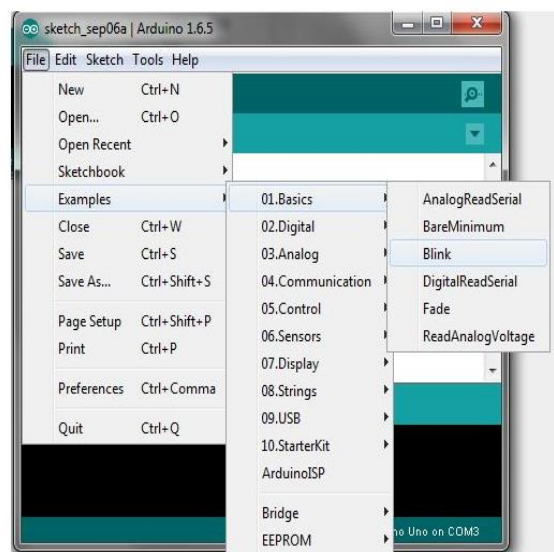
Fig.5 :Selecting Port

At this point, your board should be set up for programming, and you can begin writing and uploading code.

#### (4) Serial Monitor:-

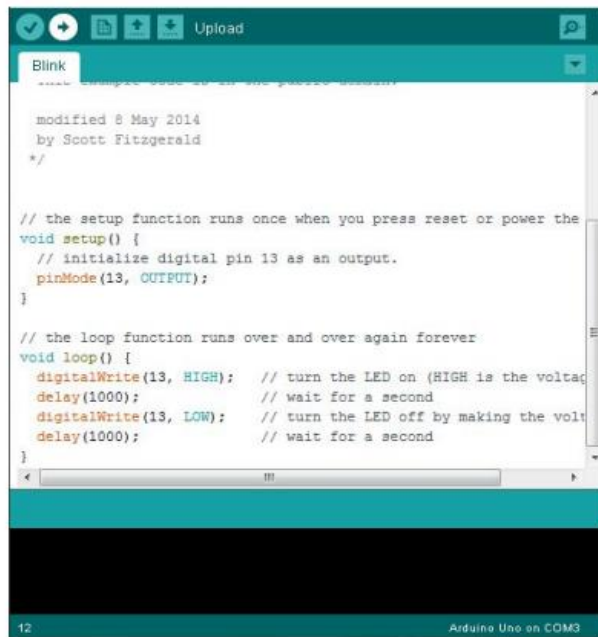
Displays serial data being sent from Arduino or Genuino board (USB or serial board). To send data to the board, enter text and click on the "send" button or press enter. Choose the baud rate from the drop-down that matches the rate passed to Serial. begin in your sketch. Note that on Windows, Mac or Linux, the Arduino board will reset (rerun your sketch execution to the beginning) when you connect with the serial monitor. You can also talk to the board from Processing, Flash, Max MSP, etc .

Upload Button: 



Arduino IDE: Loading Blink Sketch

Fig.5 :Loading blink Sketch



```
Upload
Blink
modified 8 May 2014
by Scott Fitzgerald
*/

// the setup function runs once when you press reset or power the
void setup() {
  // initialize digital pin 13 as an output.
  pinMode(13, OUTPUT);
}

// the loop function runs over and over again forever
void loop() {
  digitalWrite(13, HIGH); // turn the LED on (HIGH is the voltage
  // wait for a second
  delay(1000);
  digitalWrite(13, LOW); // turn the LED off by making the voltage
  // wait for a second
  delay(1000);
}

12 Arduino Uno on COM3
```

Fig.6:Code

#### (5) LED:-

The positive side of the LED is called the "anode" and is marked by having a longer "lead", or leg. The other, negative side of the LED is called the "cathode." Current flows from the anode to the cathode and never the opposite direction. A reversed LED can keep an entire circuit from operating properly by blocking current flow. So don't freak out if adding an LED breaks your circuit. Try flipping it around. If the mobile phone exists then the LED will start blinking.



Fig 7:LED Blinking

## V.APPLICATIONS

The basic applications of the RF power amplifier include driving to another high-power source, driving a transmitting antenna and exciting microwave resonators. Among these applications, driving transmitter antennas is most well known. The transmitter-receiver are used not only for voice and data communication but also for weather sensing (in the form of a radar).

RF power amplifiers using LDMOS (laterally diffused MOSFET) are the most widely used power semiconductor devices in wireless telecommunications networks, particularly mobile network. LDMOS-based RF power amplifiers are widely used in digital mobile networks such as 2G, 3G, and 4G. and the good cost/performance ratio make them the preferred option for amateur radio.

## VI.CONCLUSION

In this paper I have presented how we can detect a mobile phone in examination hall and simultaneously acknowledge the system administrator at remote place, moreover the detector displays information about the detection which is displayed on computer (GUI). This mobile transmission detector or sniffer can sense the presence of an activated mobile cell phone from a distance of one and-a-half meters. So it can be used to prevent use of mobile phones in examination halls, confidential rooms, etc. It is also useful for detecting the use of mobile phone for spying and unauthorized video transmission.

## VII. REFERENCES

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