

# Survey of a Bank Security System by using Embedded System

**Priyanka Patil<sup>1</sup>, Sukanya Pimparkar<sup>2</sup>, Shivali Telgar<sup>3</sup>, Ms. Saylee Begampure<sup>4</sup>**

BE, Electronics and Telecommunication, RMD Sinhgad School of Engineering, Pune, India<sup>1,2,3</sup>

**Abstract:** Bank security is essential for various reasons; one of those reasons incorporates giving secure keeping money to customers and shielding the bank from false conduct. The primary point of this task is to outline a security system that give proficient method for security to banks, by methods for a propelled entryway bolt system. It is utilized as a part of the fields where security and mystery is the essential imperative. The principle objective is to plan advanced code bolt which is utilized to decrease manual obstruction to the most extreme degree alongside the ultrasonic movement sensor. Here clients are given with discrete passwords by methods for GSM, when they utilize their RF-IDS. On the off chance that any of the clients need to open the entryway or locker then he needs to enter his secret key in the system effectively, at that point the system sends message on the client naturally. This message is sent through a G S M Modem. By this System we give propelled Security in Banks.

**Keywords:** PIR sensor, Temperature sensor, Arduino MEGA, IR sensor, Metal Detector.

## I. INTRODUCTION

By and by days billions of people groups are making usage of banks step by step in day-today life and from now on package of trade can show out the bank. So Investigations and investigates are proceeding remembering the ultimate objective to upgrade the security of bank trades. As the amount of banks related infringement, for instance, robberies, unlawful weapons and the security of agents are proceeding near, the development must be brought out remembering the true objective to crush this and the framework must be made progress.

Old thoughts and devices are getting changed by need of them. In regular day to day existence we need to search for new security strategy. In this way we progress to give the most outrageous level security plot. In this present age, security was transforming into a to a great degree basic event for most of the greater part, especially in the common and urban locale. A couple of individuals will endeavor to cheat or take the property which may endanger the prosperity of trade out the bank, house, and office. To beat the security hazard and a huge part of people will present a group of locks or ready framework. There are numerous sorts of ready frameworks available in the market, which utilizes different sorts of sensor. The sensor can recognize differing sorts of changes occur in the incorporating and the movements will be dealt with to be given out an alert as showed by the pre-set regard.

## II. LITERATURE SURVEY

- Development of a bank security system using programmable logic controller (plc)

The point of this project is to take care of the bank security issues (theft, illicit weapons, and the wellbeing of representatives) caused by absence of the security in the banks. This project is partitioned into two sections which are hardware and programming. A sort of bank security system by utilizing Programmable Logic Controller (PLC) was outlined, and the programmed control of the bank security system was performed by programming. The equipment part is the model of one bank containing two front entryways, one entryway of the vault room, and a few sensors. The cut-off switches, entryways and sensors are associated with Zelio PLC Schneider SR3B261BD. The PLC controls each flag which is originating from the information sources (Limit change) to programming and show to the yields (Doors). Using software's, Function Block Diagrams (FBD) are programmed to control the traffic light.

- Development of an intelligent system for bank security

This paper proposed a compelling checking and controlling system for bank locker rooms which is totally self-sufficient. The security system is intended to distinguish the unlawful passage in the bank locker room regions that regularly occurs in instances of the thefts. The significant worry with current physically administered security system is

that if the burglary happens then the banks are not possessed the capacity to distinguish the looters because of absence of evidence. The system will concentrate on the wellbeing of the bank locker rooms in a powerful route by identifying and controlling unapproved movement. The proposed security system will spare the pictures at whatever point the movement will be identified that can be utilized as a part of future for examination The system will impart the picture information ceaselessly to the remote area control rooms utilizing electronic observing through local area network (LAN) and can likewise send the notice message through short message service (SMS) to the administrator utilizing GSM technology.

**III. PROPOSED SYSTEM**

The proposed framework is separated into a few phases. The initial segment is utilized to control two front (entryways) and weapon nearness sensor (indicator), second to control vault room, and third to control the alert framework when the bank isn't working (non-working hours).

Case 1: First case is when the bank is working (working hours) and while entering the bank the presence sensor which is located in front of the gate (door) of the bank will be activated and the gate (door) will be opened.

Case 2: Second case is when the bank is working (working hours) but where the weapon is detected. When the person entered in the bank with weapon then the buzzer is in ON state.

Case 3: Third case is when the bank is working (working hours), but now the bank employee wants to enter to vault room. So, if the bank employee wants to enter to vault room, he/she will need to enter correct password on keypad to open the door of vault room.

Case 4: Case four is when the bank is not working (non-working hours). All gates are closed and only the presence sensor is in activate mode. When the presence of human detected during non working hours then buzzer is in ON state which provide alert to security person.

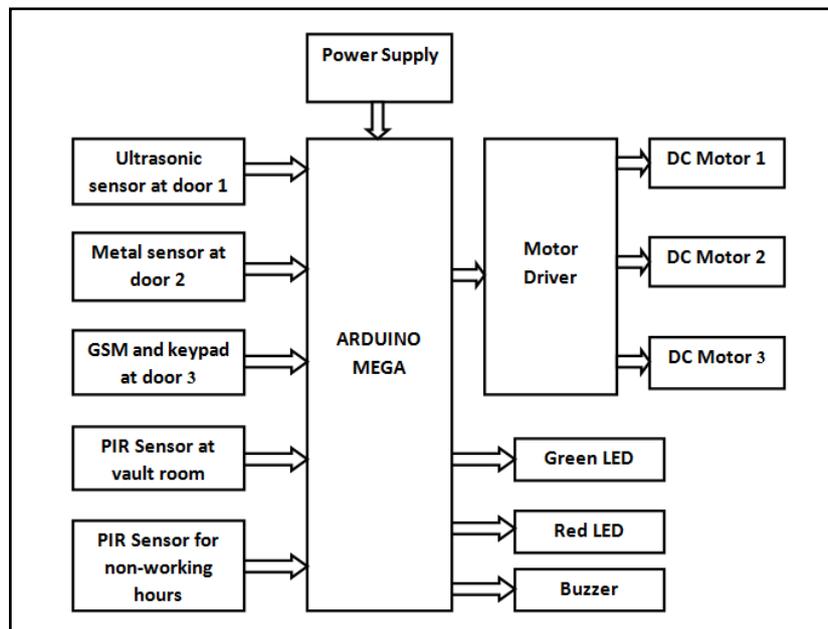


Figure 1: Block diagram of proposed system

1. Microcontroller

The Arduino Mega is a microcontroller board in view of the ATmega2560. It has 54 advanced input/output pins (of which 14 can be utilized as PWM outputs), 16 simple analog inputs, 4 UARTs (equipment serial ports), a 16 MHz crystal oscillator, a USB association, a power jack, an ICSP header, and a reset button. It contains everything expected to help the microcontroller; basically associate it to a PC with a USB link or power it with an AC-to-DC connector or battery to begin.

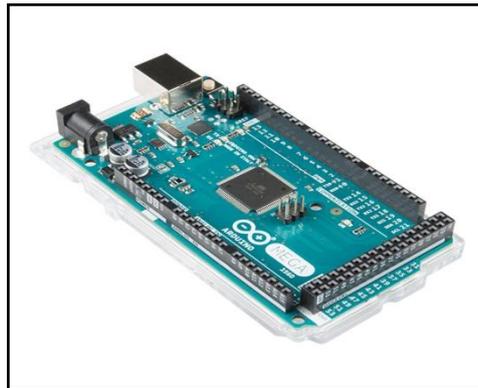


Figure 2: Arduino Board

## 2. IR sensor

IR Infrared Obstacle Avoidance Sensor Module has a couple of infrared transmitting and getting tubes. At the point when the transmitted light waves are reflected back, the reflected IR waves will be gotten by the recipient tube. The locally available comparator hardware does the preparing and the green pointer LED springs up.

The module includes a 3 wire interface with Vcc, GND and an OUTPUT stick on its tail. It works fine with 3V to 5V levels. Upon block/reflectance, the output pin gives out a digital signal (a low level flag). The installed preset fines tune the scope of operation, powerful separation run is 2cm to 80cm.

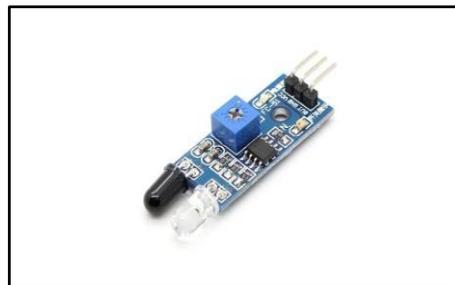


Figure 3: IR Sensor

## 3. PIR Sensor

The term PIR is the short type of the Passive Infra Red. The expression "passive" shows that the sensor does not effectively participate simultaneously, which implies, it doesn't discharge the IR signals itself, rather inactively distinguishes the infrared radiations originating from the human body in the encompassing territory. At the point when a human body or any creature cruises by, at that point it captures the principal space of the PIR sensor. This causes a positive differential change between the two cuts up. At the point when a human body leaves the detecting zone, the sensor creates a negative differential change between the two divides. The infrared sensor itself is housed in a hermetically fixed metal to enhance stickiness/temperature/clamor/resistance. There is a window which is made of normally covered silicon material to ensure the detecting component.



Figure 5: PIR Sensor

#### 4. DC motor

Electrical DC Motors are persistent actuators that change over electrical into mechanical energy. The DC motor accomplishes this by creating a ceaseless rakish turn that can be utilized to pivot pumps, fans, compressors, wheels, and so forth. There are fundamentally three sorts of customary electrical motor accessible AC Motors, DC Motors and Stepper Motors. A DC motor comprises of two sections, a "Stator" which is the stationary part and a "Rotor" which is the pivoting part. The outcome is that there are essentially three sorts of DC Motor accessible.

Brushed Motor: This kind of motor creates a magnetic field in an injury rotor (the part that turns) by passing an electrical current through a commutator and carbon brush gathering, consequently the expression "Brushed". The stators (the stationary part) magnetic field is created by utilizing either an injury stator field twisting or by perpetual magnets. By and large brushed DC engines are shabby, little and effortlessly controlled.



Figure 6: DC Motor

#### IV. ADVANTAGE

- The comparably higher accuracy and better comprehensibility, simplicity and low weight of a actuator System.
- The system provides complete security to bank.
- System is completely automatic.
- This system will have low cost, low power consumption and high accuracy.

#### V. CONCLUSION

In this manner our undertaking gives new upset in present day world. We can decrease robbery in bank locker by giving full security to it. Accordingly the withdrawn wrongdoings in banks can be controlled by our project. By actualizing our system the bank theft can be dodged thus it will give effective security in banks. The idea can be created promote by expanding the scope of controller and interfacing GSM module in output side to give greater security.

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