IMPLEMENTATION OF INTELLIGENT SECURITY SYSTEM FOR CASH-BOX TRANSPORTATION BY USING GPS & GSM

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ABSTRACT

To insure the security of the cash of logistics vehicle, we designed Implementation of intelligent security system for Cash box transportation by using GPS & GSM. Here are the only human security is accessible for the cashbox transportation. But this system is not secure & on the electronic base such security system is not making that's via we design the electronic lock based security system for cash box transportation.In that by using many different electronic module such as ARM7,Electronic lock, motion sensor, GSM & GPS.we transfer the cashbox through vehicle one to another place in the box use motion sensor. which detect any physical contact to the cash then the buzzer isringing. That time message goes to the Bank Manager through GSM by using MAX-232.For the security we set password for open the box. But any one hack the password that's via we use OTP. By using OTP we secure the system. Hence the system we use in the future for cashbox transportation more secure.That's via we design the Implementation of Intelligent Security System for CASHBOX Transportation By Using GPS & GSM. In our system security is main purpose of our project.

Keywords:-*GPS,GSM, ELECTRONIC LOOK, MOTION SENSOR.*

1.INTRODUCTION:-

Transportation plays an important part in our life. That is the transportation only which make the people connected from each other but the method of the vehicular tracking is still difficult.With the help of this Vehicle tracking is designed which will make tracking easier to the human being. With the use of GSM and GPS module to give exact and real time location of vehicle for that we are using a controller with GSM and GPS module. The GSM module will be provided with a mobile for communication purpose. GPS will give the longitude and latitude values are been transmitted to the server with the help of Global Service for mobile,after the longitude and latitude value will uploaded the server the userdownload with the help of android application and internet we will able to download it from server and get the real time location of the vehicle.

In this system by using Motion-Sensor we avoid the robbery of Cash-box.The GPS/GSM Based System is one of the most important systems, which both GSM and GPS technologies. It is necessary due to the many of applications of both GSM and GPS systems andthe wide usage of them by number of people throughout the world. This system designed for users in transport business, provides real-time information such as location, and expected arrival time of the user is moving vehicles in a concise and easy-to-read format.

1.2 Literature Review

Real-time tracking and management of vehicles has been a field of interest for many scientists and a lot of research work has been done for tracking system.

El-Medany, W.; Al-Omaryet.Al.[15] describes a real time tracking system that provides accurate localizations of the tracked vehicle with low cost. GM862 cellular. A monitoring server and a graphical user

interface on a website is also developed using Microsoft SQL Server 2003 and ASP.net to view the proper location of a vehicle on a specific map.

Hu Jian-ming; Li Jie; Li Guang-Hui et.al.[10] describes an automobile anti-theft system using GSM and GPS module. The system is developed using very high speed type single-chip C8051F120 and stolen automobile is detected by the use of motion sensor. The system remains in contact with automobile owner through the GSM module, for the safety and reliability of automobile.

Fleischer, P.B.; Nelson et.Al.[14] describes development and deployment of GPS (Global Positioning System)/GSM (Global System for Mobile Communications) based Vehicle Tracking and Alert System. This system allows transport companies to track their vehicles in real-time and provides security from armed robbery and accident occurrences.

Le-Tien, T.; Vu Phung et.al.[4] describes a system based on the Global Positioning System and Global System for Mobile Communication. The practical model for routing and tracking with mobile vehicle in a large area outdoor environment. The system will acquire positions of the vehicle via GPS receiver and then sends the data to supervised center by the message or GPRS (General Package Radio Service) service. Finally, the position of the mobile vehicle will be displayed on Google Map.

 Muhammad Ali Mazidi, Janice Gillspie, Mckinlay, RolinD.et.Al [19]" The Microcontroller in Embedded System: using Assembly and C," 2[nd]edition published by Pearson Education.

2 Block Diagram

2.1 Description of block diagram
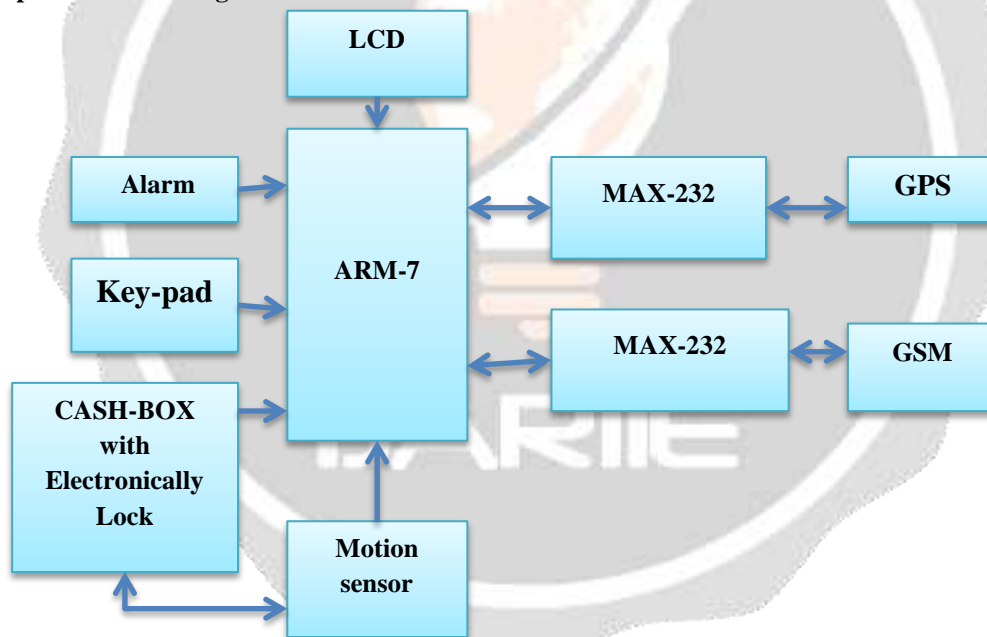
Fig 1:- Block diagram of System

above fig. shows the block diagram of Implementation of Intelligent Security System For CASHBOX Transportation Using GSM &GPS.In that many blocks are available which is explain below:

- ARM7(LPC2148)
- LCD
- KEY-PAD
- CASH-BOX with ELCTRONIC-LOCK
- MOTION-SENSOR
- MAX232
- GSM
- GPS

- USER MOBILE
- ALARM

These all blocks are explain in detail below

❖ **ARM7(LPC2148):-**

In this project ARM7 Microcontroller is Used for interfacing to various hardware processor. the current design is an embedded application ,which can continuously monitor a vehicle position and report the status of vehicle on reset. For doing so an ARM7 microcontroller is interfaced serially t GPS receiver. In that project we use the ARM7.It is 32-bit processor, it is high speed processor. in that flash type memory is used .it is useful for the set different instructions.

❖ **LCD:-**

It is connected to the processor and by set outside which display the route of the vehicle in which we put the cash box.it shows us the position of vehicle.LCD(Liquid Crystal Display)also LCD is very helpful in providing user interfacing as well as for debugging purpose.LCD flat panel display that uses the light modulating properties liquid crystal.

❖ **KEY-PAD:-**

IN that project we use the 4*4key-pad.With the help of that we set the password for cash-box for security purpose. The 4*4 keypad shows the matrix keyboard i.e.the 16 keys arranged in 4 rows and 4 columns.It requires two port:an input port and an output port. The columns are referred to as scan lines and rows are referred to as returns lines. If no key is pressed there is no connection between the rows and the columns , but when a key is pressed, there is connection established between the corresponding row and columns and hence a signal is received on the rows port pin of the processor, indicating the information of the key pressed.

❖ **Cash-Box with Electronically Lock:-**

Cash-box is very important in that project, we use electronically lock with cash-box. It is mechanically work in that process. It is used for the security. which is electronically locked that's via any one can't open the box.

❖ **MOTION-SENSOR:**

Motion-sensor use for the safety purpose. It is one type of transducer. Which is convert physical quantity into the signal .It is connected to the cash-box and processor. When anybody attack the cash-box then it sense and give out put to the processor then ringing the alarm.

❖ **MAX-232:-**

It is the serial communication peripheral port which is use for the transmitter as well as receiver. which is connected to processor and GPS&GSM.it is commonly used in computer serial port.

❖ **GPS:-**

GPS stands for Global Positioning System and it is very widely used today.In almost all the smart phones, there is a GPS module installed. GPS,in full positioning system ,space based radio –navigation system that broadcast highly accurate navigation pulses to users on or earth .the GPS Modem gives many parameter as the output,but only the needed data coming out is read and displayed on LCD same data is sent to the mobile at the other end from where the position of CASHBOX is demanded.

❖ **GSM:-**

GSM (Global System for Mobile Communication) is a digital mobile telephony system . GSM modem digitizes and compresses the data ,then sends it through a channel.To communicate over UART , we just need three signals viz., RXD (receive),TXD(transmit),GND (common ground).GSM modem with microcontroller can be used for various application like SMS control of industrial equipments . GSM Modem is used to send the position (Latitude & longitude)of the vehicle from the remote place. It is the theGloble System Mobile. It is used in that for the PCS means Personal Communication Service for the security purpose.

❖ **Buzzer:-**

It work at two times first any one touch the cash-box and when it goes the final position or destination. it is use for the alert purpose for the users.

2.2 Working:

In that project we use the ARM processor, it is the heart of processor. Then we use the LCD for the display the message and location. Then we connect RS-232 is the serial communication port which is used for the communication between GSM,GPS with processor. As well as transmitter and receiver.

Then the GPS connected it is locate the exact position of the vehicle. Which is display on LCD. After that we use the GSM it also use the communication purpose with the help of GSM we transfer & receive the SMS of the password. That is enter with the help of Key-pad. In that we use 4*4 key-pad   For the security purpose we use the Electronic lock. Which is mechanically work in that system. In the CASH-BOX we use one motion sensor. If any

onebreak the lock and touch the box it sense the sensor and pass the signal to the processor and then ringing the buzzer. For more security we use the OTP. Suppose any one hack the system and try to open the box. So that's via we use the OTP

3 Algorithm

1. Start
2. .Initialize ports ,LCD, Serial.
3. Display title on LCD.
4. Display enter the password.
5. Detect & check key press.
6. Is key press?
   a) No:-Then go to step 4
   b) Yes:- Then the accept password through key-pad.
7. Is password correct?
   A) No:-
   a) Then go to the GPS co-ordination
   b) Check motion sensor.
   c) Is motion sensor detect?
i) No :- Then go to the repeat the step for check motion sensor
ii) Yes:- Then the motion sensor detect the alarm on
   1) Then the motion sensor detect the alarm on
   2) Send SMS to Bank Manager Regards security problem and location of vehicle
   3) Then it goes to the step check motion .
   B) Is password correct then go to next step.
8. Send OTP SMS through GSM.
9. Then display "Enter OTP".
10. Accept password through key-pad and go to next step B.
11. Is OTP correct ?
    a) No:- It go to step No 8 and repeat the process.
    b) Yes:-It goes to next step.
12. Open the box.
13. Wait for 15sec delay
14. Then close the box.
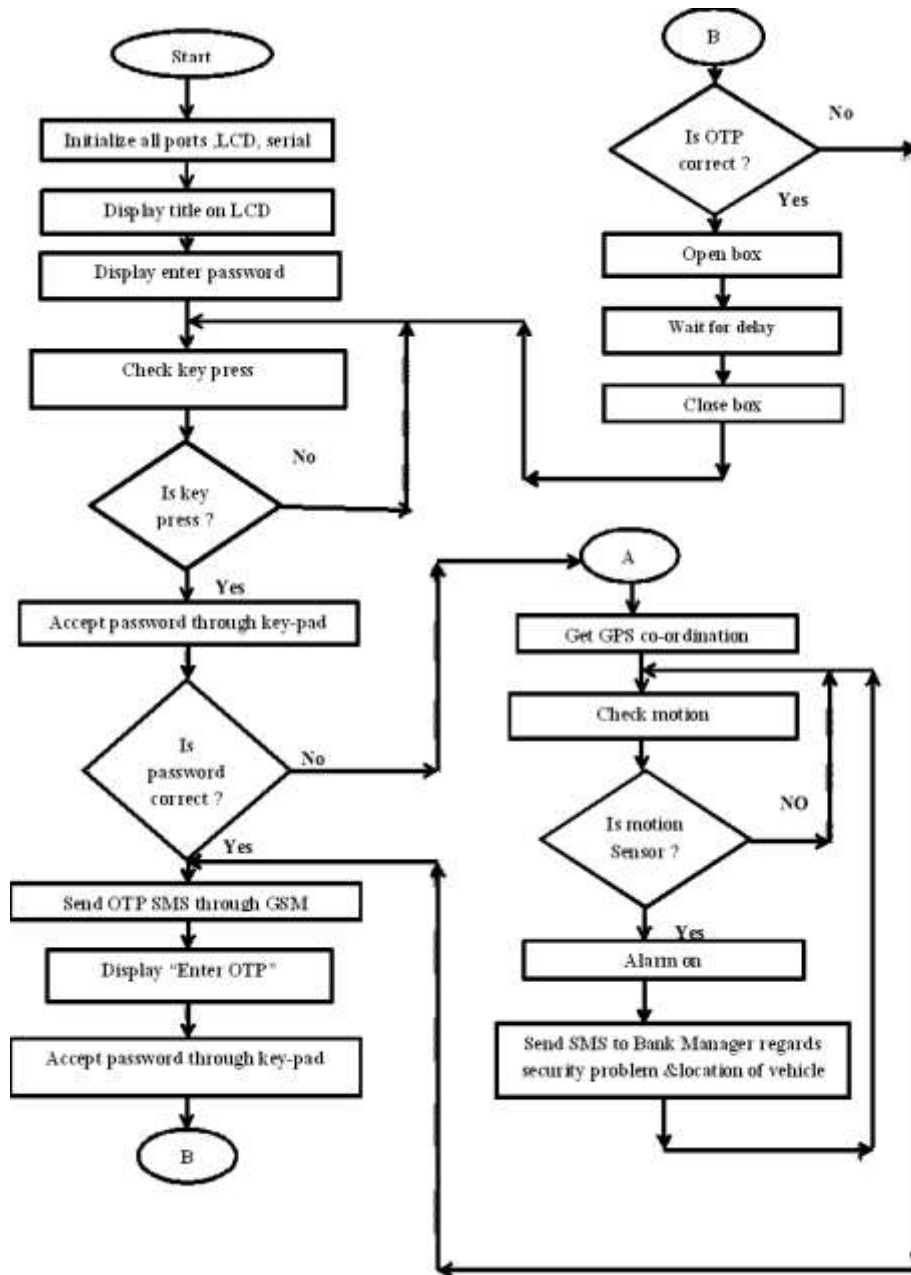15. It goes to step no.4 and repeat the process.

4 Flowchart:-

Fig.2:-Flowchart of system

5 Application:-
- In future we use these module for transportation of FUEL & GASES.
- In that we also use the RFID system.
- The device ensures vehicle security & smooth fleet management.
- It can be used for trucks carrying valuable goods to keep tracks of the status of delivery & location of the truck at all times.
- You can locate your stolen vehicle easily using your mobile without any extra cost.

6 Result:-

In that system we design the cashbox transportation .
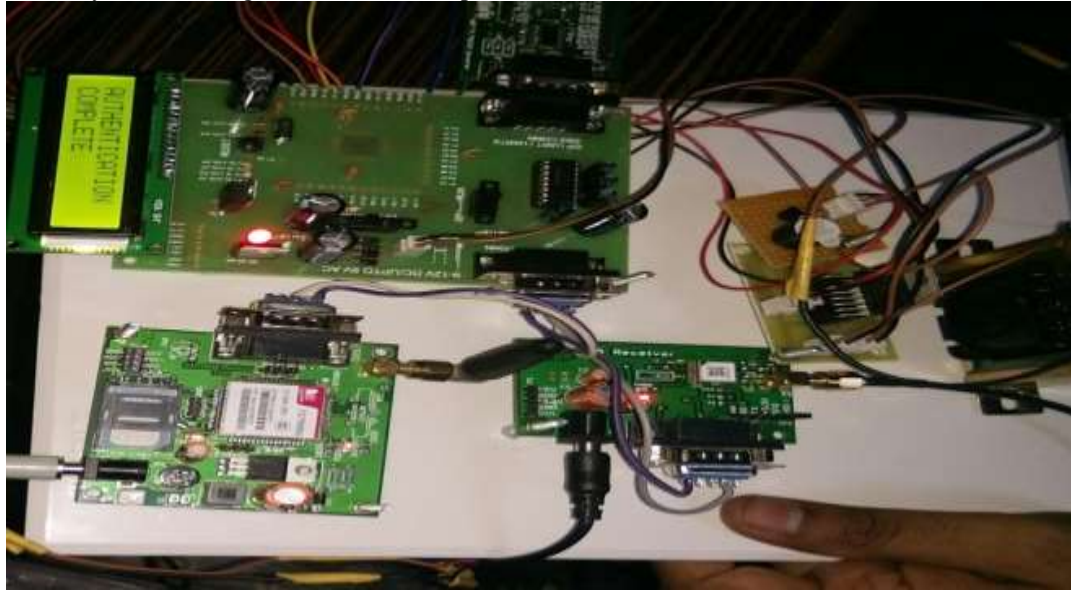
 Conclusion:-

The system is all about controlling theft of a CASH BOX. The system is about making CASHBOX more secured by the using of GPS, GSM technology app It is the we design CASHBOX is successfully for the main purpose of security for human being.

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