

Security System for Goods Transportation

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Abstract— In the transportation of valuable materials, theft is very common in transit. Petroleum products are stolen from tankers by the people authorized to transport them. Question papers of examinations are sneaked out in transit before the examinations and leaked to the public. Milk, oil and other such products are diluted and adulterated while they are being transported. All these thefts happen only because the locking mechanism is designed in such a way as to provide the authority of entry to the person who has the key. Nothing can be done to prevent theft if the person with that authority is corrupt. We are proposing a locking mechanism for transport vehicles carrying valued goods where the opening of the lock is triggered only by the complete fulfilment of three factors, namely, the presence of the locked entity in a geo-location fence, RFID authentication, the predened password and authentication password from the owner or the authorized person.

Key words: Transportation, Security System

I. INTRODUCTION

Currently, the transportation of rare and expensive materials is very prone to theft and tampering. Among them one such product is oil and petroleum products. In the present scenario while transporting the oil and petroleum products we haven't installed any security system in the vehicle. So, it leads to the unauthorized access resulting in theft. Especially, in India there are many such cases which have been reporting under petroleum product thefts. On an average, 10,500 litres of petroleum products are stolen every day on the route from Baitalpur of India to Nepal oil Corporation. This is just one such example of petroleum theft which results in adulteration of petroleum products as well.

To solve this unpleasant scenario, we are implanting an advanced security system in the vehicle which is used for transportation of petroleum products. In our security system we are making use of both GPS and GSM technologies to avoid the intermediate access to the petroleum products during transportation. Implementation of Pressure sensor in the system which helps to detect the unauthorized access during transportation. To provide additional security we are implementing Keypad. Thus, the security system eliminates the human intervention while transportation and is capable of being accessed only at the source or the destination. Further if any malpractice takes place during transportation, pressure sensor is incorporated to detect external pressure and a message is sent to the owner.

Hence the security system for goods transportation provides an additional layer of security unmatched by other present security systems. Here, the container in the vehicle can only be accessed at a particular location which is predefine Additionally, RFID authentication, keypad is also present to obtain a pass-code from the person trying to open the container along with an authentication password from

the owner through GSM. This system can also be used into other security systems, to provide this added advantage.

II. PROPOSED WORK

Now we are proposing one technology which is advanced than previous technologies that is SECURITY SYSTEM FOR GOODS TRANSPORTATION (containers with goods etc.) as shown below.

Here we improvise the present system by using latest technologies like AT89S52 Micro controller, PRESSURE sensors, RFID Module, GSM and GPS Module.

we can implementing system for opening of the lock and tracking is triggered only by the fullment of three factors namely, locked entity in a geo-location fence using GPS&GSM, RFID authentication and passwords.

III. RELATED WORK

In India we have different means of goods transportation. But most of the present goods transport system does not have incorporated latest technologies. In previous system the security of goods transportation is just with a key locked mechanism who has the authority of entry person.

A. Disadvantages

- But with system there is drawbacks like anyone can easily stole the materials even if authority of entry person by doing malpractice.
- In this system there is no tracking of particular vehicle to identify the particular location or position whether if any dangers or damages happen like thefts, accidents etc.

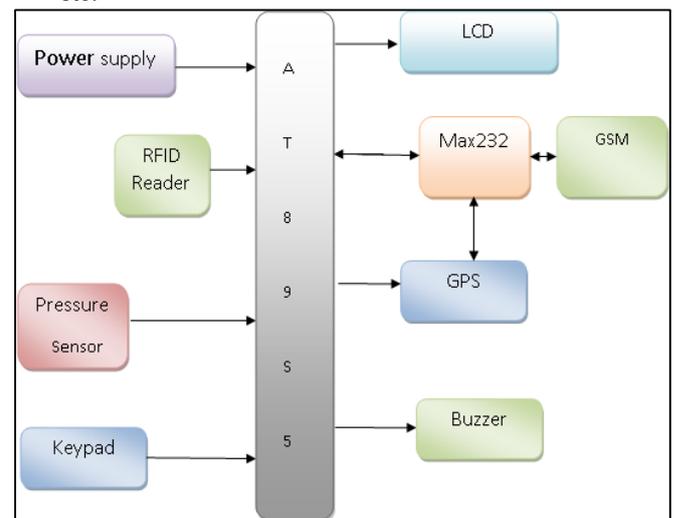


Fig. 1: Proposed Block Diagram

IV. HARDWARE IMPLEMENTATION

1) Execution Steps

- Switch ON the power supply

- After few seconds we get a message on LCD to swipe a card
- With the help of RFID Reader we swipe the unauthorized card then we get message and location with the help of GPS, GSM.
- If we swipe a authorized card we get a OTP Password to the owner number.
- With the help of Keypad we type the OTP Password. If it is correct then we get message as "GOODS REACHED TO CORRECT PERSON" with the latitude and longitude values. if the password is not correct we have buzzer alert and message to owner
- While transporting if any unauthorized person entered into container by doing malpractices. To stop that we place a "PRESSURE SENSOR". Pressure sensor fix to certain limit
- If the pressure increase to that we get message as "GOODS ROBBED" and location with the help of GPS & GSM and there is Buzzer alert.

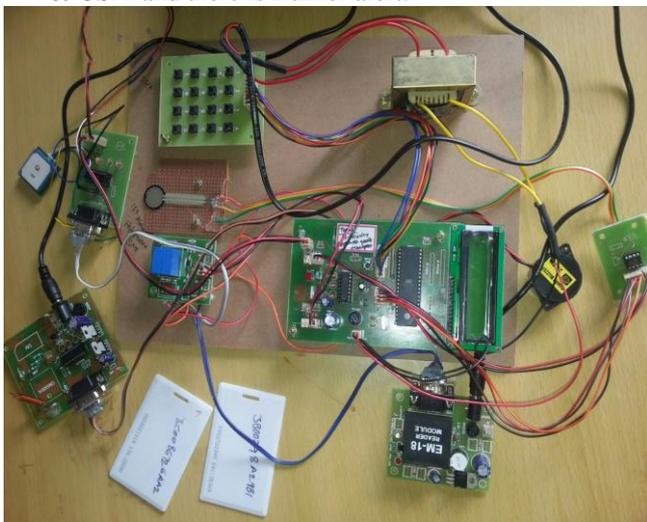


Fig. 2: Hardware Kit of the Project

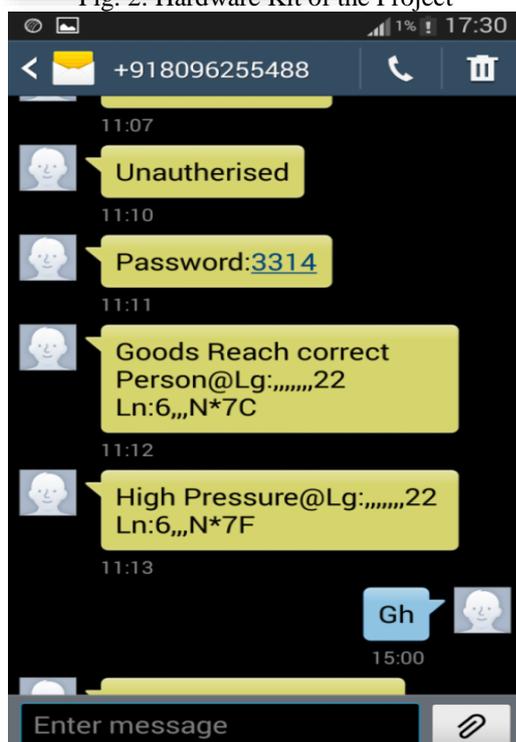


Fig. 3: Output

V. CONCLUSION

In the transportation of valuable materials, theft is very common in transit. One best example is adulteration of petroleum products which incurs loss to oil and petroleum companies. This is greatly undesirable for developing countries like india which indirectly affects the country's economic growth. In the same sense when we are transporting some confidential products, security is of prime importance. Current system wouldn't have such facilities. So, our project will full the requirements by providing necessary security while transit.

The implementation of GPS/GSM based advanced security system uses a AT89S52 microcontroller. The project has many applications for the many transportation systems because it provides security for each transporting material. This project has the potential to adapt existing system without any requirement.

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