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CONDITIONAL PRIVACY PRESERVING SECURITY PROTOCOL FOR GSM APPLICATION

K. Karthikumar[1], M. Anto Bennet[2], B. Ramji[3], and P. Poonugundran[3]

[1]Assistant Professor, Department of Electrical and Electronics Engineering, VEL TECH, Chennai-600062, India

[2]Professor, Department of Electronics and Communication Engineering, VEL TECH, Chennai-600062, India

[3]UG Student, Department of Electrical and Electronics Engineering, VEL TECH, Chennai-600062, India

ABSTRACT: The idea of this work is to develop the prevention of theft of the ATM card and to control the usage of the ATM card by unauthorized person. The additional feature of this work is that no transaction can be done without the knowledge of the respective card holder for the cause that GSM transactions are being implemented. The description of the work is as follows; whenever the transaction has to be done, the card is inserted inside the ATM machine and devices are made to interact with some of the legacy systems. A message is received to the mobile phone of the rightful proprietor with a pin number of four digits. This number is entered in the ATM machine. In case of password being correct it moves on to the next level of money transaction, asking for the money withdrawal. Scenario like, the password is found to be defective the transaction will get cancel.

KEYWORDS: Spatial smoothing Processing (SSP), Radio Frequency Identification (RFID) technology.

INTRODUCTION

The idea of this work is to develop the prevention of theft of the ATM card and to control the usage of the ATM card by unauthorized person. The additional feature of this work is that no transaction can be done without the knowledge of the respective card holder for the cause that GSM transactions are being implemented. The description of the work is as follows; whenever the transaction has to be done, the card is inserted inside the ATM machine and devices are made to interact with some of the legacy systems. A message is received to the mobile phone of the rightful proprietor with a pin number of four digits. This number is entered in the ATM machine. In case of password being correct it moves on to the next level of money transaction, asking for the money with drawl. The Secure Mobile Wallet is the product belonging to the latest technology trends in mobile communications and IT security. As the client application of the larger system, SAFETM, Secure Mobile Wallet will introduce convenience, functionality and security in financial mobile transaction. The aim of the design is to provide people a more flexible way to use cash and credit cards securely. GSM provides recommendations, not requirements. The GSM specifications define the functions and interface requirements in detail but do not address the hardware. The reason for this is to limit the designers as little as possible but still to make it possible for the operators to buy equipment from different suppliers.

The GSM network is divided into three major systems: the Switching System (SS), the Base Station System (BSS), and the Operation and Support System (OSS).The applications of SMS/GSM Based security system are quite diverse. There are many real life situations that require control of different devices remotely and to provide security. There will be instances where a wired connection between a remote appliance/device and the control unit might not be feasible due to structural problems. In such cases a wireless connection is a better option. Basic Idea of our work is to provide GSM Based security even if the owner is away from the restricted areas. For this we adopted wireless mode of transmission using GSM. Beside this there are many methods of wireless communication but we selected GSM in our work because as compared to other techniques, this is an efficient and cheap solution also, we are much familiar with GSM technology and it is easily available. This system

Corresponding Author: K. Karthikumar

consists of a GSM modem for sending and receiving the SMS, Intel 89S52 microcontroller which is controlling the entire system, LCD for the display purpose , keypad for entering the password and supporting circuitries like rectifier for ac to dc conversion. It can be installed at any desired location e.g., office (to protect important files and document), banks (to protect cash in locker) etc.

LITERATURE SURVEY

The additional feature of this work is that no transaction can be done without the knowledge of the respective card holder for the cause that GSM transactions are being implemented. The description of the work is as follows; whenever the transaction has to be done, the card is inserted inside the ATM machine and devices are made to interact with some of the legacy systems. A message is received to the mobile phone of the rightful proprietor with a pin number of four digits. This number is entered in the ATM machine. In case of password 0being correct it moves on to the next level of money transaction, asking for the money withdrawal. An array antenna based localization using Spatial smoothing Processing (SSP) is proposed for wireless security and monitoring, referred to as array sensor. The proposed method is based on the array sensor that exploits an array antenna at the receiver to detect the propagation environment of interest. If an event occurs, e.g., human motion, the propagation environment is changed. Thus the eigenvector and eigen value spanning the signal subspace that is inherent to its environment changes as well. Using a machine learning technique based on the eigenvector and Eigen value, we can detect the event accurately. The proposed method is improved from our previous work which uses only a limited number of signal subspace features [1].Accuracy of target self-localization in RFID tag information networks and grids critically affects its situation awareness. With an in sufficient localization accuracy, information about local 2D or 3D surroundings delivered to a target by request may provoke collisions, even fatal. In RFID networking systems, target state can be observed over a big number of tags. For such a case, the Extended Kalman Filter (EKF) algorithm is modified and a new extended unbiased Finite Impulse Response (EFIR) filtering algorithm is developed. We show that redundant information captured from the tags allows increasing both the localization accuracy and system stability [2].This author [3] described by a novel Radio-Frequency Identification (RFID) smart shelf that accurately locates tagged objects using standard passive UHF RFID tags. This standard-based commercial off-the-shelf approach provides significant advantages over custom HF RFID and other near-field RFID approaches, including reduced tag costs, minimal infrastructure costs, and simple operation. In order to achieve accurate location sensing of objects sitting on the shelf, we utilize a novel localization algorithm that utilizes detected changes in a tag's readability to infer the presence of neighboring tags. According to our experimentation results, with a single RFID reader antenna for two wooden shelves of size 91 cm × 152 cm, our smart-shelf system estimates nine box-level object locations with an average error of just 18.48 cm, which is a 71% improvement in accuracy compared with the previously published k Nearest Neighbor (KNN) algorithm.

A survey for success factors of Web application development reveals that development methodologies, tools, and techniques are not considered as important by developers for the success of Web application development. Rapid application prototyping, ERD (Entity Relationship Diagram), program flowchart, and application framework are more highly regarded than the object-oriented tools such as use case diagram, class diagram, object diagram, and sequence diagram. Developers focus more on maintainability and scalability than end users and management for evaluating the success of Web application development. Ambiguous user requirements, scope creeping, and lack of success metrics are evaluated as the most important issues for the failure of Web application development. Research results also indicate that developers need more help in communication, management, and control than the technology aspects of the development process. The overall findings point to flexible, simple, proven, participative, and management-oriented methodologies, tools, and techniques to address ambiguous and changing user requirements in the next generation development approaches for Web applications [4]. Radio-Frequency Identification (RFID) technology has been widely used in passive RFID localization application due to its flexible deployment and low cost. However, current passive RFID localization systems cannot achieve both highly accurate and precise moving object localization task owing to tag collisions and variation of the behavior of tags. Most researchers increase the density of tag distribution to improve localization accuracy and then consider using either anti-collision process embedded in the hardware of the RFID reader or advanced localization algorithms to enhance localization precision. However, advanced anti-collision processes for RFID devices are challenged by the physical constraint characteristics of radio frequency; and improved localization algorithm cannot fundamentally reduce the impacts of tag collision on localization precision [5].

This [6] has been explained by indoor localization system using Radio Frequency Identification (RFID) technology. Locations of passive RFID tags are determined by scanning multiple RFID reader antennas' radiation beams. During each scan, the horizontal and elevation angles of the reader antenna are recorded when the transition of a tag entering or leaving the antenna beam's coverage area occurs, and this angle information is used in the developed algorithm to calculate the tag's location. The proposed system requires a minimum of two reader antennas, without the need for reference tags.

Experimental results obtained from a controlled environment demonstrate that the average localization error distance of the proposed beam scanning method is less than 20 cm. Device-Free Localization (DFL) with Wireless Sensor Networks (WSN) is an emerging technology for target localization, which has received much attention in the area of Internet of Things. Received Signal Strength (RSS) measurements are the key to realize DFL and mainly affects the localization performance. Most existing approaches need to measure the RSS of all the wireless links in WSN, which take much time on measurement process and localization algorithm due to the large amounts of RSS data, thus they are inefficient, especially in the case of target tracking. In this paper, by making full use of the consecutiveness of motion, we present an efficient measurement strategy based on a small set of correlated wireless links. Furthermore, a lightweight Compressed Maximum Matching Select (CMMS) algorithm is proposed to localize target, which only needs a small-scale matrix-vector product operating for one estimation [7].In the NFC application support only android mobile phone and worked in small distance. So it will overcome by using GSM application.GSM support the any mobile phones and distance is very high. In this system is more efficient than the NFC application.

PROPOSED SYSTEM

In this session has two section one has transmitter and other receiver section. The transmitter section consists of power supply, encoder and RF txr Receiver section consists of GSM, decoder, microcontroller, UART, relay, pc, 4x4 keypad, motor, camera switch and RF receiver shown in figure 1&2.

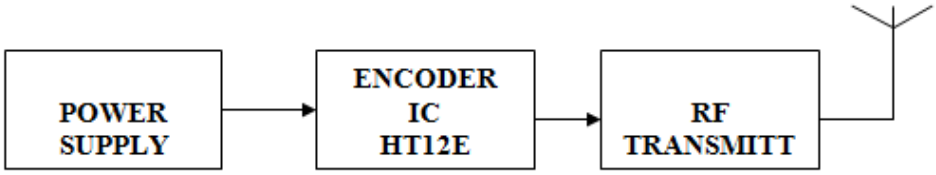

Fig.1 BLOCK DIAGRAM (TRANSMITTER SECTION)

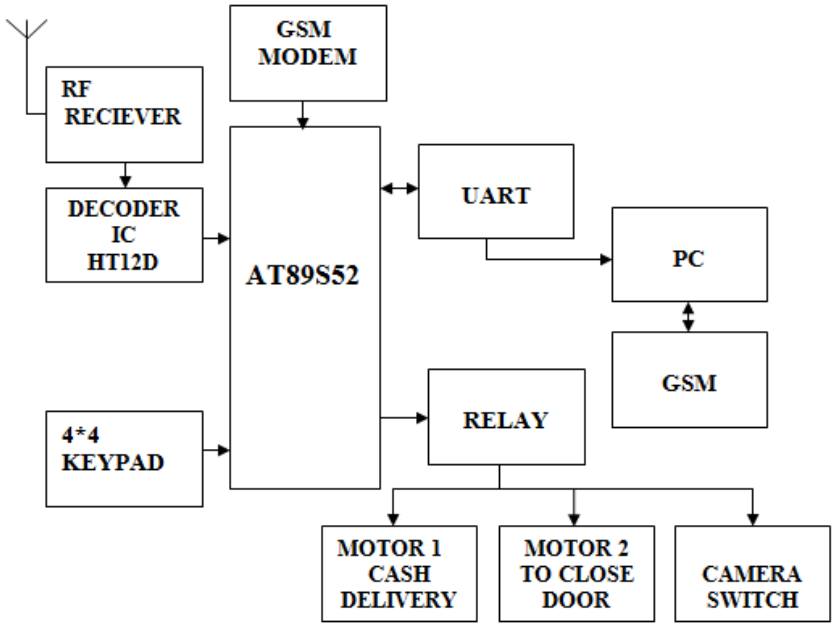

Fig.2 BLOCK DIAGRAM (RECEIVER SECTION)

The RFID reader reads the id number from passive tag and send to the microcontroller, if the id number is valid then microcontroller send the SMS request to the authenticated person mobile number, for the original password to open the door, if the person send the password to the microcontroller, which will verify the passwords entered by the key board and received from authenticated mobile phone and allows for further process. Transmitter section, when given the power supply the LCD display shows “show your ID”. Then RFID reads the id and transmit the OTP code to receiver. In receiver section,

when receive the OTP code from transmitter and the receiver send the password to transmitter section. So it will given by user. Then further process is done by microcontroller.

The main goal of this paper is to design and implement an ATM security system based on RFID and GSM technology which can be organized in ATM centers. In this system only authentic person can be recovered money from the ATM. We have implemented a security system based on RFID and GSM technology containing door locking system and money transaction using RFID and GSM which can activate, authenticate, and validate the user and unlock the door for transaction process. The RFID reader reads the id tag and send to the microcontroller, if the id number is valid then microcontroller send the SMS request to the authenticated person mobile number, for the original password to open the door, if the person send the password to the microcontroller, which will verify the passwords entered by the key board and received from authenticated mobile phone. So that further procedure can able to process. Fig 3 shows that the microcontroller used to storing the programs and monitoring the system functions and control the modules. If the password will be matched the next process of transaction has to be done or otherwise error will be generating and making the alarm sound by buzzer. Then RFID used to transmit and receiving the required signals with autonomous function. The encoder is used to convert the one form of code to another. Decoder is reverse.

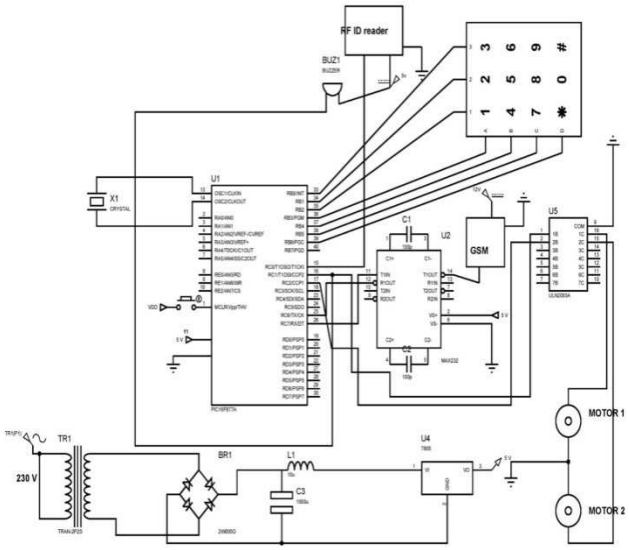

Fig.3 circuit diagram

Process of encoder function the power supply unit is used to convert the 230v ac to 12v dc by using step down transformer. Relay is a switch contact which is used to open or close the contact and operated in electrically or mechanically. In this figure [3] the GSM is used to communication between user and ATM machine. It has two motors. One is withdraw the money and other used for door closing and opening function.

RF READER

The RFID reader reads the id number from passive tag and send to the microcontroller, if the id number is valid then microcontroller send the SMS request to the authenticated person mobile number, for the original password to open the door, if the person send the password to the microcontroller, which will verify the passwords entered by the key board and received from authenticated mobile phone and allows for further process.

MICROCONTROLLER

It is the heart of the embedded system which is used to store the programs and control the other modules. It is a 16 bit microcontroller which will verify the passwords entered by the key board and received from authenticated mobile phone and allows for further process.

ENCODER

An encoder is a device, circuit, transducer, software program, algorithm or person that converts information from one format or code to another, for the purposes of standardization, speed, secrecy, security, or saving space by shrinking size.

DECODER

A decoder is a device which does the reverse of an encoder undoing the encoding so that the original information can be retrieved. The same method used to encode is usually just reversed in order to decode.

GSM

A GSM modem is a wireless modem that works with a GSM wireless network. A wireless modem behaves like a dial-up modem. The main difference between them is that a dial-up modem sends and receives data through a fixed telephone line while a wireless modem sends and receives data through radio waves.

- Sending SMS messages.
- Monitoring the signal strength.
- Monitoring the charging status and charge level of the battery.
- Reading, writing and searching phone book entries.

MOTOR

It has two motors. One is used for money transaction and another motor used for door closing or opening function.

RELAY

It act as a switch which is open or close a contact and operated in electrically or mechanically and operating voltage is 5v.

BUZZER

It is an audio device. When the voltage is given the buzzer making a sound.

POWER SUPPLY UNIT

In this unit is used for given a supply to kit. It has many equipments such as transformer,regulator and rectifier etc.. regulator produced the output of constant DC 5v. the rectifier convert the ac to dc voltage. The transformer used to step down by 12v.

1X5 KEYPAD

It is input device which is used to enter the password to ATM machine.

EXPERIMENTAL RESULTS

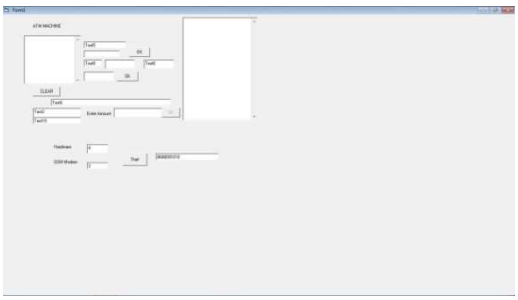

Fig.4 output

Fig .5hardware module

Fig 6 RFID reader

Fig .7 microcontroller

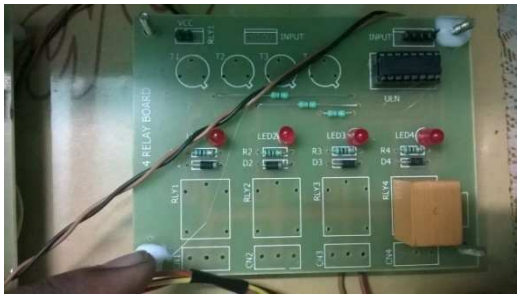

Fig .8 Relay circuit

Fig 9 GSM

Fig 10 switch and motor

In fig 4 and 5 is a output of hardware and software. The hardware module consists of RFID reader, relay circuit, GSM, motor and switch matrix which is connected in microcontroller. In fig 6 is RFID reader which is used to automatically detect the RFID card number i.e. for example ATM card. In fig 7 is microcontroller which is used to store the programs and monitoring the input and output and also used to control the all modules. The LCD display is used to displacing purpose. In fig 8 is relay. It is act as a switch open or closes the contact which is operated in electrically or mechanically. Fig 9 is a GSM which is used to communication between user and operating system i.e. call or Message through user. In fig 10 is a switch and motor. The switch is an input device which is used to type the password and input of an system.

CONCLUSION

This paper proposes when interrupt comes from the authorized person for money withdrawal in ATM centers. But there may be a delay caused because of GSM messages since it is a queue based technique, which can be reduced by giving more priority to the messages communicated through the controller. In future smart card system which includes face and voice recognition system to avoid delay. In this paper GSM and RFID implemented not only for ATM centers but also bank lockers and home security system. For the future work, the conditional privacy preserving security protocol for GSM application was implemented by prevents theft control and to avoid the getting money from ATM center by unauthorized person. It this system used for long distance between user and ATM center and also used for any mobile phones.

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