

# DESIGN OF BANKING SECURITY SYSTEM USING RFID

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## **Abstract:**

The paper is concentrated on building up the system that will increase the Banking security. Due to thefts the loss of materials and equipment's is currently a massive problem in most of the firms. Stealing can be significantly reduced through proactive management techniques that stress the implementation of rigorous project specific security plans. We planned practice to improve banking security system which is based on RFID, GSM system and microcontroller devices. Here we have carried out some extra safety features in the existing scenario so the arrangement could become more secure than ever it would be. In this system we added a very interesting feature like the addition of a MEMS technology. MEMS accelerometer is implemented using embedded microcontroller. MEMS accelerometer can sense motion in 3 axis (X, Y and Z). The user can assign a predetermined password by a fixed set of motions as decided by them. Once the Microcontroller senses any motion, system is asking for a password. The system will be blocked if anyone presses the wrong password. This progress to develop a Banking security system more safe as compared to that authenticates the user merely simply by using a PIN or password.

**Keywords:** RFID Reader, RFID tags, Sensor, Neural Networks.

## **1. INTRODUCTION**

Presently, safety has become an essential issue of most people especially in areas like the rural and urban areas. Now day many people will try to cheat and steal the belonging and property which may endanger the safety of money in the bank or house or and office. To overcome these security threats, most of people will install bunch of locks or alarm system. There are many types of systems available in market which utilizes different types of sensor.

The sensor can detect different types of changes occur in the surrounding and the changes will be processed to be given out a alert according to the pre-set value. By the same time this system may not be good for all the time. In this paper we have implemented to ensure the safety of the money in the bank locker, house, and office (treasury) by using RFID technology which will be more secure than other systems

In 21st century people were concerned about the safety, for their valuable things. Old devices are getting modified as per requirement. In day to day life we need to find and seek for new security arrangement. Thus we evolve to provide the maximum level security scheme.

They emit identifiers to identify, but also sense that whether or not a container has been opened. Given such examples, there is surprisingly little overlap between the literature on sensor security and that on RFID security. The boundaries between wireless-device types will inevitably blur, as evidenced by the dual role of reader and tag played by NFC devices. Using machine techniques in our approach we have observed logical patterns that are obtained from physical sensor attached to the system.

### **1.1 RFID TECHNOLOGY**

Radio frequency identification known as RFID is a technology that is use to transmits data using radio waves from an RFID tag attached to an object by the reader for tracking and identifying objects. RFID system consist of two main components i.e., the reader and the tags. The tag is normally attached to the objects to be monitored and carries information in a microchip. The reader on the other hand detects tags that are within it frequency range and writes to or read from the tags.

### 1.2 THE RFID TAG

The RFID (Radio frequency identification) tags are primarily a kind of a memory device that can transmit its contents when it is being scanned by the readers. The memory it has does consist of binary digits called as the bits, and the transmission of data and receiving of data has a communication channel. The tags can be an electronic circuit with its very low power integrated circuit (passive device) or its own power supply (an active device) which taps energy from the scanner to transmit its content. In a tag, the transmission power is very low and is measured in millionths of watt i.e. microwatts. A tag can be passive, semi-passive or active. It can also be categorized based on memory type and based on the transmission channel. The Passive RFID (Radio frequency identification) tags have no internal energy source; energy is supplied to the antenna by the incoming radio frequency waves induced enough energy for the CMOS integrated circuit in the tag to get activated and transmit a response. The semi-passive tag is similar to a passive tag, but has an addition of a small power source (battery). This battery constantly powers the integrated circuit of the tag and the need for an aerial to tap energy from the incoming signal is removed. Active tags have their own internal energy sources which supply the energy for the integrated circuit producing an outgoing signal. They are most sophisticated or reliable due to their ability to make or conduct a session with the reader. As a result of their onboard energy source, they can transmit at a higher power level than passive tags, allowing them to be more effective in RF-challenged environments such as water, metal or at longer distances. A battery can live up to a maximum of 10 years and have practical ranges of hundreds of meters.

### 1.3 THE RFID READER

The RFID reader sends radio waves to the tags and waits for its response. The tag detects this pulse and sends back a response to the tag ID number and possibly other information as well. The read-only RFID reader only reads data from tags, usually a microcontroller-based unit with a wound output coil, peak detector hardware, comparators and firmware which are designed to transmit energy to tags and read information back from them by detecting their backscattering modulation, different types for different protocols and standards existing. The read/write reader reads data from/to tags. While in a stationary reader, the device is attached in a fixed way.

## 2. RESEARCH METHODOLOGY

This research study adopts a qualitative approach where previous studies related to e-banking and RFIDs were analyzed and discussed. This study is completely based on the literature review and the findings and suggestions were recommended based on the analysis of the literature review. Various studies related to RFIDs in the past were considered and critically evaluated in the context of the banking industry to develop the findings of the study.

## 3. FINDINGS

It is clearly identified that most of the studies related to acceptance of the technology, considered it as a relevant model when it comes to the acceptance of technology to understand the attitude of human behavior and intention to accept the technology which is RFIDs in the context of this study. The major determinants which relate to the intention to adopt the mentioned technology are perceived usefulness and the ease of use. Apart from this, the concept of Self-efficacy was also identified as a contributing factor in order to accept the technology. Therefore, it is very clear that the perception of users towards the adoption of RFIDs in e-banking is directly influenced by the attitude of users and their intention to make use of the technology.

## 4. CONTRIBUTION OF THE STUDY

The RFID technology has been in talks for a long time especially in the financial sector. Many studies have considered using finger prints as an additional security measure but since the development of mobile banking there is an emphasis on the voice-enabled security which is an added advantage. According to a study by a Group on payment authentication, it points out that "RFIDs have been long on promise and short on delivery". The scope of RFIDs is large in the financial service industry especially in

countries like Latin America and Europe. Having a authentication as a RFID measure in the field of financial service would enhance the security and effectiveness of the system. The study has contributed both theoretically and academically, the paper bridges the gaps in the existing literature and also recommends to implement RFID authentication for better banking operations.

## 5.CONCLUSION

Online banking has increased tremendously and so have the risks. This study has contributed towards the existing gaps in the literature related to RFIDs in e-banking and to understand the user's perception's towards the acceptance of RFIDs in e-banking. The study has also highlighted very clearly that once Again TAM is the model considered when it comes to user perception and attitudes towards adoption of technology. Some of the constructs identified can be beneficial during the adoption of RFIDs in the banking industry and the organizations can also make use of this study while adopting this technology from the perspective of an end user

## 6. Future Scope

For the further consideration, the plan is not limited to this level, in fact to carry this automation system technology to the higher platforms as per the needs and the requirements of various organizations working in different sectors like IT, non-IT and some organizations which carries sensitive information.

## 7. REFERENCES

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