

# RFID BASED SMART PHONE PROXIMITY ABSENCE ALERT SYSTEM USING IOT

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**Abstract:** This concept deals with design, implementation and evaluation of an RFID based cell phone anti-lost and anti-theft measure. The cell phone owner is given an audio-visual alert at the very instant of the lost event, and, cell phone deduces the fact that it is away from its owner and executes the safety measures. This is realized by equipping the cell phone with a low-power RFID Reader and tagging the owner with a passive RFID token to determine a private space around him, which spans within 2-10 feet.

**Keywords:** RFID module, Precautionary measures.

## I. INTRODUCTION

In the recent past, the smart phone lost and theft cases have emerged as a serious problem not only to individual but also at official end, notably the Secure-out-Smartphone(S.O.S) initiative. The system relies on an endeavor to take the security measure at the very instance a cell phone is lost. Since cell phone can be housed inside pocket, dashboard elsewhere. The system make it more appropriate to devise a proximity based absence alert mechanism which monitors the presence of cell phone in close proximity of the user and generates an alert once it falls out of vicinity. The RFID system consists of an RFID reader and a RFID tag. In a typical working of an RFID system, the reader sends out an identification request to the tags, and the tags reply with the tag information. There are two major categories of RFID tags namely active and passive tags. This system consists of a passive tag attached to the user and a low-power RFID Reader interfaced with smart phone.

## II. RELATED WORK

### A. Purpose of the document

This paper is to design and develop the smart phone anti-lost and anti-theft measures using the RFID tag module.

### B. Scope of the project

The system works with RFID tag which detects the smart phone within a range of specified frequency which is not more than 860hz or a distance of 1 meter.

## III. EXISTING SYSTEM

Current systems has just the phone tracking facility once the cell phone is lost.

Limitations of the existing system

- Owner is not given any intimation of cell phone being lost.
- Tracking the phone in indoor positioning using signals is difficult.
- System is inappropriate as an anti-lost solution because of low communication range.

## IV. PROPOSED SYSTEM

Is a system for providing an alert at the very instant the smart phone is lost and out of range detected by RFID module.

*Benefits of Proposed System*

- The owner is notified at the instant he loses the cell phone rather than he learns the fact and take measures afterwards.
- The cell phone gets an indication that its outside private space of owner, as a result it can adopt precautionary measure without third party interference.

## V. REQUIREMENTS AND SPECIFICATIONS

### A. Functional Requirements

- User login
- Login and password are verified and authenticated
- User's mobile number is registered and format is verified.
- RFID tag detects the frequency range if it is out of range voice alert is initiated within specified time delay mobile is not collected then location of phone is sent to concerned numbers.

### B. Non-Functional Requirement

- Availability: System is readily available and provides complete data of location if mobile is lost provided there is internet facility.
- Security: This system is highly secured and will authenticate users strictly, once the mobile is out of range security measures are initiated.
- Reliability: The system generates safety measures immediately if the phone moves out of specified range.

Usability: The proposed system can be used with ease by the users.

### C. Minimum Hardware Requirements

- Processor : Intel core i3
- Hard Disk : 80 GB
- RAM :2GB
- RFID Tag :860Hz-960Hz
- RFID Reader :125khz
- GSM module
- Renesas microcontroller:R5F100LE

### D. Software Requirements

- Operating System :Windows XP/7/8/10, Android(upto 5.0.1)
- Database :MYSQL
- Database connectivity :JDBC

- Server :Apache Tomcat v7.0
- IDE :Eclipse EE
- Scripting :Java
- Server Side :JSP
- Java Version :JDK 1.6
- Workbench: Cubesuite+, Renesas flash programmer v2.00
- Web Application: JSON,REST

VI. SYSTEM DESIGN

USECASE DIAGRAM

A use case diagram is a graph of actors, a set of use cases enclosed by a system boundary, communication associations between the actors and users and generalization among use cases.

LOGIN:

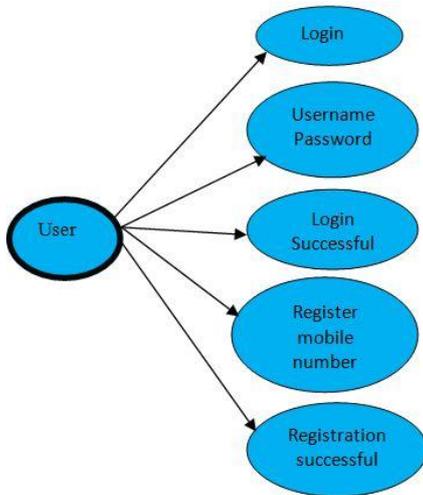


Fig 6.1 Use case Diagram for Login

Working on System:

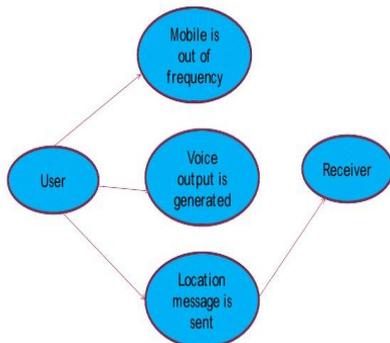


Fig 6.2 Use case Diagram for working on System

SENDER:

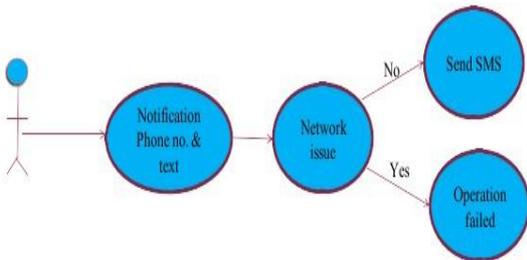


Fig 6.3 Use case Diagram for Sender

RECEIVER:

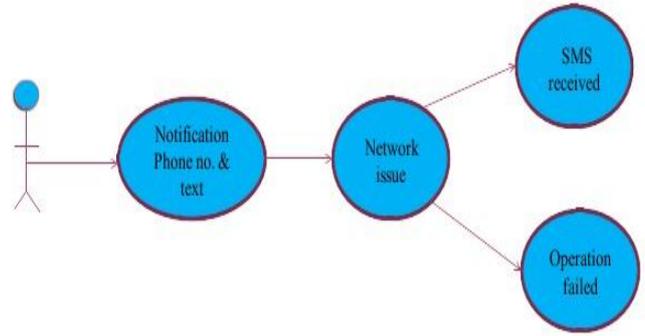


Fig 6.4 Use case Diagram for Receiver

ACTIVITY DIAGRAM

The activity diagram focuses on representing activities or chunks of processing which may or may not corresponded to the methods of classes.

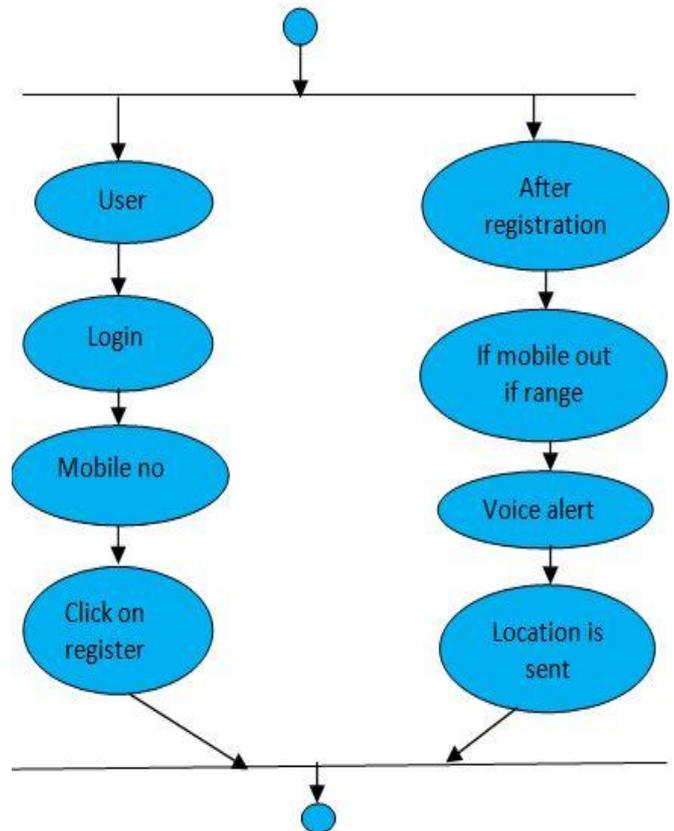


Fig 6.5 Activity Diagram

VII. RESULTS

The owner of the smart phone can deduce his phone within specified range of frequency using the RFID tag and reader module. Once the smart phone is out of frequency an audio alert is generated and safety measures as in the latitude and longitude location of the phone is sent to the specified numbers. This helps the owner of cell phone to secure his phone to maximum level as the system initiates at very instant of lost or theft act.

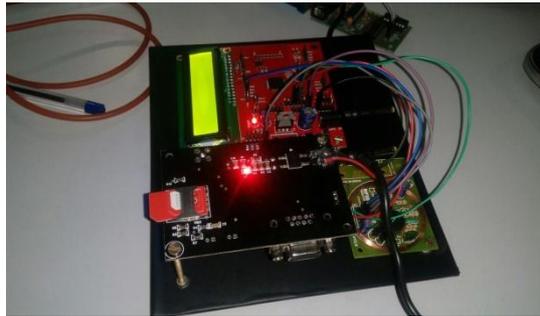


Fig 6.6: Hardware setup of the system

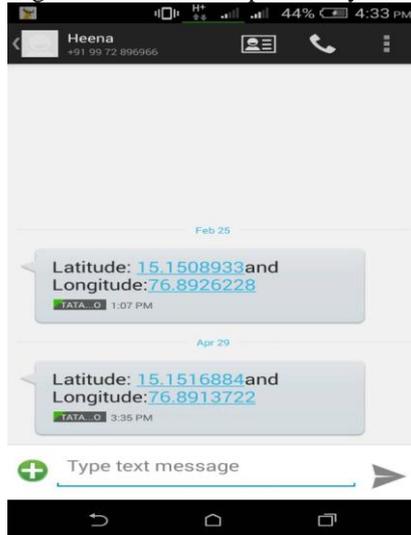


Fig 6.7: Location of the smart phone by text message

## VIII. CONCLUSION

The articulate the viability and efficacy of an RFID based system as a cell phone anti-lost and anti-theft measure. The system comprises of a smart phone equipped with a low-power RFID Reader that interrogates a body-worn passive tag to determine a private space which resides within 10 feet of the tagged owner. Besides, the cell phone can also function like a low-cost mobile RFID terminal. Moreover, the appealing results of current design show that our system can be referenced for academic learning and further experimentations on RFID-based communications.

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