RFID Based Security System for Women

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Abstract--In recent years, acts of assault and violence against women are rising at a menacing rate. With escalation of female employees in industries and other sectors, it is now becoming a necessity for females to travel at late hours and visit distant and isolated locations as a part of their work regime. However, the exponential increase in assault, violence and attacks against women in the past few years, is posing a threat to the growth and development of women. Defence isn't the only measure that can suffice against this increasing abuse. A security solution that creates a sense of safety among women needs to be devised. In instances of attack, it is largely reported that women are immobilized. There is thus, a need of simpler safety solution that can be activated as simply via RFID and GSM and can instantly send out alerts to the near ones and to family members of the victim.The system can be implemented in the form of a partial wearable and partial portable system, the information is passed to RFID reader which communicates with PIC microcontroller and through GSM the "help" message is sent to 2 predefined contacts(parents, police).

Index Terms: GSM modem, RFID reader, PIC Microcontroller

I. INTRODUCTION

Many unfortunate incidents have been taking place in woman's case. Problems may come from any direction such as women walking on the road after the work, going to super market or many other reasons for which they go alone. People at home are not sure of their return safely. Another factor is woman die without knowing the reason as they attend excursions and industrial trips conducted by the organizations. It happens due to attacks on woman but not suicides. There might be a situation in which the person has to travel alone a long distance at an odd hour and perhaps even by public transport and may face some danger. At such a time, a personal safety app might not only be wise to have easy access to, it might also give you a lot of confidence needed. There might be a situation that when women had an accident in the late night and there are no one to help and to take care of them. In such situations the person will not be able to tell the situation that he/she facing. And they do not know the basic first-aid details and to know the person where the incident has happened. To escape from the un-wanted meetings we do not know the way to escape from that meeting because we do not know the fake calls working. These are some of the problems that have taken place in the day to day life of women.The objective of research work is to create a safety system in the form of a portable safety device for women,that does the following tasks:

- Alerts family and police and gives location coordinates of the woman being attacked.

This paper focuses on a security system that is designed merely to serve the purpose of providing security to women so that they never feel helpless while facing

such social challenges. An advanced system can be built that can detect the location of person that will enable us to take action accordingly based on electronic gadgets like GPS receiver, GSM. The idea to develop a smart device for women is that it's completely comfortable and easy to use as compared with already existing women security solutions such as a separate garment, bulky belts and infamous mobile apps that are just very abstract and obsolete. Section II gives an overview of the system designed to create a safety system for women.Section III will give a brief account of the nature of the design and a description of hardware components and software approach used until the current work progress. An account of implementations performed till date is presented. Section IV will produce the results obtained in accordance to the work completed yet, and will discuss on the expected outputs. Section V will conclude the report giving the summary and an account of future course of the research.

II. SYSTEM OVERVIEW

The security system that is designed

Algorithm for Women Security System:

1) RFID gets the person's information
2) If the user feels any harassment or stalked.
3) Then Switch On by pressing emergency button
    a) Activates RFID tag
    b) RFID receives the encoded data
    c) Processor performs the task
    d) Message Alert "EMERGENCY ALERT I M IN DANGER" to predefined contacts.

system design is proposed. The device is intended to be made with microcontroller. Attempts are being made to develop a method by which this image can be transferred on a web server, ideally on the police server. Next, the Global Positioning System (GPS) receiver will acquire the location co-ordinates of the woman subjected to attack, and will send these to the pre-decided cell phone numbers (typically the family and the police), via GSM module.

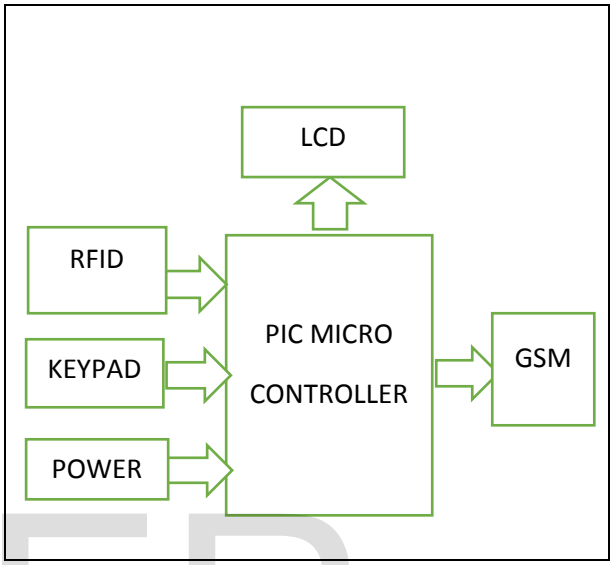
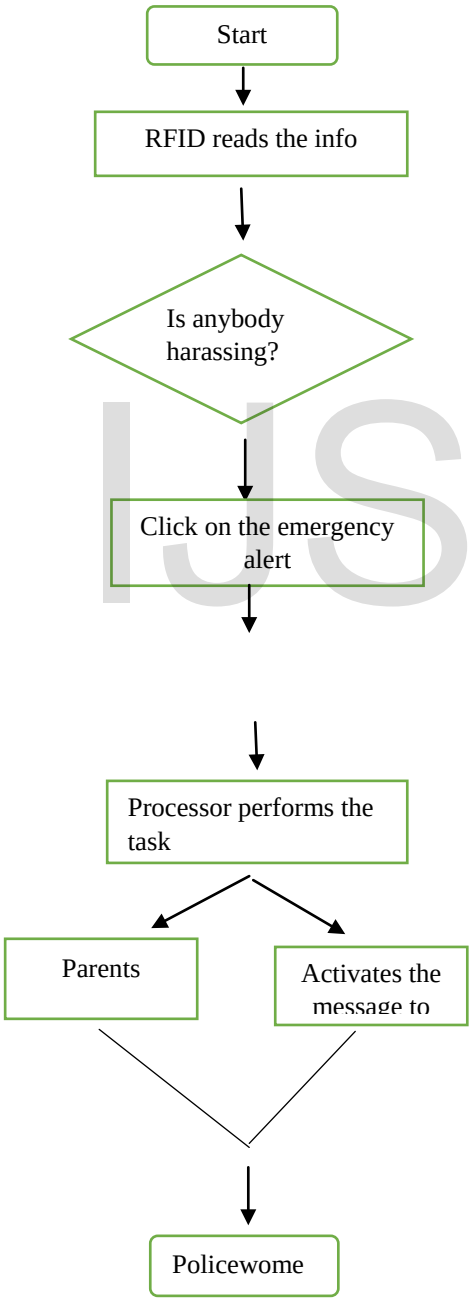


Fig.1. Architecturediagram of proposed system

Location tracking intends to update the location of the victim continuously to either the police or the family of the victim. The most convenient form to inform about location is a Short Message Service (SMS) due to obvious and wide use of cell phones by the masses. On parsing the correct reading, the microcontroller commands the Global System for Mobile (GSM) module to transmit the data through an SMS.



The hardware components were chosen after conducting an extensive survey of existing tested tracking systems. The specifications are given in the following section:

A. Microcontroller: PIC

The choice of microcontroller was made on grounds of simplicity and portability. Among several options, PIC board was found to be more appropriate for this application, considering its portable structure, comparatively simpler programming platform and its ability to seamlessly interface multiple components. The PIC board consists of a programmable board along with software IDE (Integrated Development Environment).It operates on 5V DC supply.

B. GSM SIM900A shield:

The SIMCOM 900A GSM module was chosen since it is easy to program the module by its easily available AT (Attention) command set. Also, the SIM 900A module is MMS compatible, which is not the case in SIM 300 modules. For the purpose of portability a GSM SIM900 shield that can sit on an PIC is preferred. It works on 12V 2A supply.

C. RFID:

The RFID reader reads EM4100 family transponder tags that are brought in proximity to the reader and output the unique tag identification number through RS232 serial port @9600 bps. The reader output 12 byte including one start, stop byte and 10 unique data byte. The start byte and stop byte are used to easily identify that a correct string has been received from the reader. The middle ten bytes are the actual tag's unique ID.

III. HARDWARE IMPLEMENTTION

Fig.2. Series of SMS received.

V. CONCLUSION AND FUTURE SCOPE

In this paper, we have proposed the designing and implementation of a safety system for women in the form of smart card. Going serially as per the objectives mentioned, a location tracking subsystem was successfully implemented and the corresponding results were logged. It allows to check the location of the person using the Tag. The Reader which is embedded in each vehicle, recognizes the details of the particular person.When the car picks up the person; he/she needs to swap the RFID card. The micro controller matches the RFID card no with its database records and sends the person id, cab id & the cab position co-ordinates to the company unit via GSM module. Based on the location tracking, it identifies the person information and driver information will pass to the police station and every cross area is measured and updated information is pass to three person during emergency situation. This will help **police** to identify the person locationand to startenquiryabout thedriver whodrive**s** the vehicle. In future the vehicle location and the driver information will be send to the two predefined contacts.

VI. REFERENCE

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