

# Cost effective security device mechanism for threats

Tejal Jadhav  
Student

Rajiv Gandhi Institute  
of technology, Mumbai  
teju92jadhav@gmail.com

Neha Save  
Student

Rajiv Gandhi Institute  
of technology, Mumbai  
nehasave52@gmail.com

Swapnil Gharat  
Lecture

Rajiv Gandhi Institute  
of technology, Mumbai  
swapnil.gharat@mctrigit.ac.in

**Abstract**—This paper proposes a low cost protection system for an individual and specially for women. The system will consist of embedded components and a software product combination. The system allows to know the current location of the individual, as soon as the trigger key on the belt is pressed. The system then packs the information along with the phone database information and the current location using the GPS (Global Position System) of the mobile phone [1]. The system then sends the messages to the respective numbers selected from the mobile database which are present in the nearest area location of that individual including the police station. This device will be valuable for providing the runtime location of the individual in any worst case scenarios.

**Index Terms**— GPS, Microcontroller, Bluetooth Modem, GPRS

## I. INTRODUCTION

Wireless has opened a new and exciting world for all of us. Its technology is advanced and changing every day and its popularity is increasing day by day. The current available software products in the market like VithU, only sends the messages to the respective numbers [2]. But in the worst case scenario, it is not possible to open that application and send messages. This application is not feasible in the worst case scenario.

In this proposed system it provides a new features like connecting hardware belt with software which tracks the location using GPS [3]-[5]. This system sends the messages to the nearest police station and respective numbers by pressing the single key placed on the hardware belt.

## II. SYSTEM OVERVIEW

### A. Introduction to system design

The single board module designed here consists of the microcontroller, Bluetooth modem, Battery, Key. The block diagram of the system is as shown in the Figure 1.

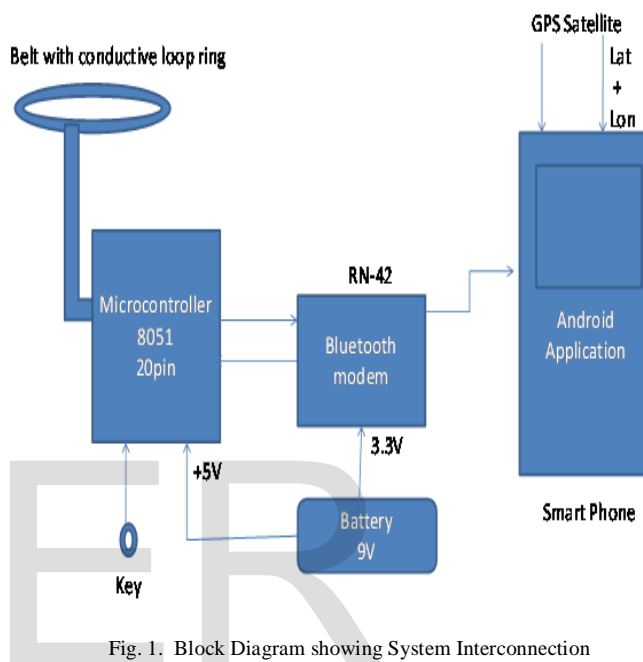


Fig. 1. Block Diagram showing System Interconnection

The 20 pin 8051 Microcontroller used has high performance & low power consumption device. The RN-42 Bluetooth modem has Low power sleep mode, perfect for short range(its range is about 50 to 60 feet ).

### B. Process flow Description:

- Initialization sequence algorithm:

- 1.Start the mobile software and enter a predefined password to start the device.
- 2.The mobile will start sending ping command to microcontroller using Bluetooth and wait for response.
- 3.The microcontroller will response to each ping query to ensure the connectivity between Bluetooth modem and mobile.
- 4.The microcontroller also keeps on monitoring the mobile bluetooth for its connectivity and also monitores the key.
- 5.when key is pressed, the signal sends to the mobile. and mobile will fetch the current GPS location and will send this information to the predefined numbers using SMS .

- Database Sequence algorithm:

1. Initialize the mobile application.
2. User has to enter ten contacts in mobile application log to Whom he / she wants to send message.
3. When key is pressed for some time then application will generate sms by taking current GPS location .
4. Application will search the contact log in mobile database according to user's nearest location and send sms to that numbers.

- Operational sequence algorithm:

1. After pressing the key signal produced will activate the software application.
2. The mobile will start sending ping command to microcontroller and wait for response.
3. Even though connection of belt loop breaks, the signal will activate the software application .
4. If someone tried to open the belt forcefully then the alert Message will be send to the predefined numbers.

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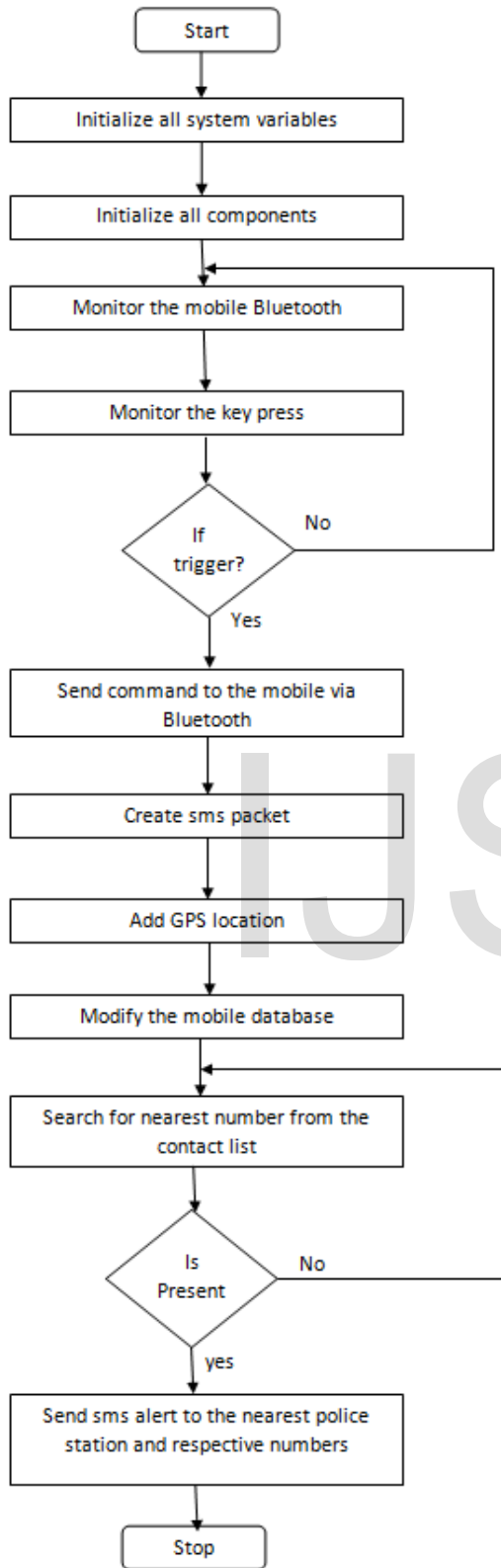


Fig. 2. System Flow Diagram

### III.CONCLUSION

This paper presents a low cost tracking system using GPS. The cost is much lower compared to existing tracking systems. It is expected that the full implementation of the proposed system would ultimately replace the traditional and costly tracking systems. The proposed system will help its users in difficult situation. This system would be highly sensitive and easy to handle. Its quick action response will provide safety and security to individual user.

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