Wearable Security Gadgets for Women Related Studies

Diana Davis[1], Jishma Jackson[2], Jincy K Wilson[3]
[1]M.Tech, India, diana@jecc.ac.in
[2]B.Tech, India, jishmamj@gmail.com
[3]B.Tech, India, jincykwilson@gmail.com

ABSTRACT

Protection of women has become an important factor in today's world. We have a lot of women protection mobile applications that are meant to help women at the time of distress. These projects consist of features like mobile notification to specific number of contacts plus a helpline number that we choose, location of the bearer with the help of GPS tracking systems and route maps of the location they are in. Our project not only consists of an app, it also consists of a locket that helps in attaining the above features. If the victim feels like she is being stalked or is in trouble she could just press a button that is provided on the locket. We have added this feature because the bearer may not always be approachable to the mobile whereas a locket could be. This locket is also provided with a camera. Thus the notification send will also contain a photo of the attacker, helping the officials to get the attacker behind the bars. Pressing the power button twice will also send the notification to the selected contacts. The route map in the notification will help the users to alert their close ones when they are in trouble.

Key words: *GPS tracking systems, Raspberry Pi, SOS Alert, IoT Systems*

1. INTRODUCTION

Protection of the weaker society (women, children and elders) has become a major issue in today's world. A system for controlling such activities has come into being. There are several IoT systems that help them to overcome such situations. IoT projects keep these users more in contact with their relatives, friends and local authorities. This is the internetworking of physical devices, connected devices, smart devices and other items—embedded with electronics, software, sensors, actuators, and network connectivity that enable these objects to collect and transfer data.

The IoT allows objects to be sensed and be controlled remotely across existing network infrastructure, creating opportunities to connect the physical world into computer-based systems, and resulting in improved efficiency, accuracy and economic benefit. IoT is also expected to generate large amounts of data from diverse locations, for quick aggregation of the data, and an increase in the need to index, store, and process such data more effectively.

2. LITERATURE SURVEY

Wearable devices are the best example for IoT devices. These smart electronic devices are worn on the body as accessories.

2.1 SENDING GOOGLE MAP LINK THROUGH MESSAGE ALERT [1][2][3]

There might be a situation where the person has to travel alone a long distance and had an accident in the late night and there is no one to help. In this system with the push of one button, people can alert the selected contacts and share the location.

The mobile application requires the name and mobile number of the persons who are to be contacted. These are the people who will receive notifications in case of an emergency.

Once the panic button is hit, the people in the emergency contacts will get a message like: I am in an emergency; followed by the exact or approximate GPS location of the cell phone.

2.2 LOGIN SETTINGS AND PRIORITISING THEM [8][9]

We have a lot of women protection mobile applications that are meant to help women at the time of distress. These apps consist of features like mobile notification to specific number of contacts plus a helpline number that we choose, location of the bearer with the help of GPS tracking systems and route maps of the location they are in. These apps thus keep them more in contact with their friends, family and authorities.

The initialization of the process requires some setup procedures. These are like entry of the contacts, the message to be sent etc. These are some simple procedures that the user has to do after the application is installed. The contacts added have to also contain the contact of an official. Then we have to prioritize them so as to what details are to be sent to whom. The prioritization is to be done in such a way that only the location and message goes to the selected contacts and the media file to the officials.

2.3 LOCATION TRACKING USING GPS [4][5]

Security systems and navigators have always been a necessity for human life. The developments of advanced electronics have brought changes in these fields. To track a human it is necessary to make a system which will be cost efficient using a GPS receiver. GPS system can be used for providing real time location and reporting of person. The person will have the tracker which contains GPS Technology and battery which is compatible for the system.

Table 1: Survey of papers

PAPERS NAME	FEATURES ADOPTED	ADVANTAGES	DISADVANTAGES	HARDWARE AND SOFTWARE
MOBILE BASED WOMEN SAFETY APPLICATION [1]	Initial settings setup, adding contacts	Creates emergency contacts, route map is sent	Real time location is not known	Android mobile app, GPS
IPROB [3]	Priortizing the contacts i.e adding a helpline number	Officials are kept in contacts, an audio of the situation is sent	Phone is not always accessible	Android mobile app, GPS
DESIGN AND DEVELOPMENT OF GPS-GSM BASED TRACKING SYSTEM [4]	System will locate target by the use of web application in Google map	User friendly, easily installable, easily accessible	Real time view of the vehicle cannot be viewed	GPS tracker
GPS-GSM ENABLED PERSON TRACKING SYSTEM [9]	Tracking of location	Cost effective, reliable, accurate tracking	Current location is not known	GPS tracker
WIFI AP BASED SECURE DATA SHARING [6]	Interact with mobile service provider	Privacy, Nonrepudiation, Integrity	Accessibility problem	Wi-Fi module, Mobile app
IP CAMERAS VIDEO SURVEILLANCE SYSTEMS [7]	Live streaming of video	Can be monitored via any web browser, higher resolution of pictures	Need a data connection for transferring video	Camera
SAUVER [2]	The required information like GPS co-ordinates will be stored	GPS information is sent to the database continuously	Phone is not always accessible	Android mobile app, GPS
SCIWARS [5]	Women's Attack Handler Module	Helps victims from any attack like physical violence, by sending alert message	This only works with the presence of mobile phone	Android mobile app, GPS tracker
GO SAFE APP[8]	Uses GPS tracking application, storing contact details	Android platform for safety measures, help the law enforcement authorities to rescue the person in danger	Phone is not accessible always	Mobile app, GPS tracker

The system uses the information with the help of GPS to track. GPS system is a Global Navigation Satellite System (GNSS), it provides the reliable location. GPS receiver can be freely accessed. The tracking system currently available in the country utilizes the GPS system to locate the object.

2.4 SHARING VIDEO AND OTHER DETAILS USING WIFI [6]

Smartphones will operate independently of each other, using local computing, networking, and functions provided by remote Internet services. It is generally difficult for a mobile phone to share data with another. Mobile phones are the fastest-spreading and most widely adopted personal computing technology. A more prominent way to support multimedia sharing from mobile devices is to host files on phones. Thus, transferring large data could be performed directly.

Sharing of data is not necessarily from mobile to mobile. Since we are using a network for sharing, the shared data can be accessed through any computing device. Thus, making it more reliable compared to any other sharing method.

2.5 LIVE STREAMING OF VIDEO USING IP CAMERA [7]
From IP camera, the video and location is transferred in digital format. Video surveillance system can be categorized into three groups one of which is completely digital (i.e. IP

cameras). Network video systems which use video servers are composed of network switch and PC with video surveillance software. Analog cameras are connected to the video server which is used to digitalize. Video server is connected using network switch to the network and further to the PC. IP camera consists of a camera and computer merged into an integral device which digitalizes and has a network connection. Video material is transferred via IP base network and via network switches using video surveillance software.

3. PROPOSED SYSTEM

Our project RAKSHA PENDANT is a system that aims to emancipate weaker society at the time of distress. The pendant consists of a camera, a GPS tracking system and button to send the alert. The notification with Google map will be send to previously selected contacts. Since the button is present on the pendant, it is more easily accessible. Video is the extended IoT feature that we have included in the system. Our project not only keeps friends, family and relatives closer, but also alerts the legal authorities.The project consists of a pendant set and mobile application. The project can be divided into four modules.

1. LOGIN MODULE

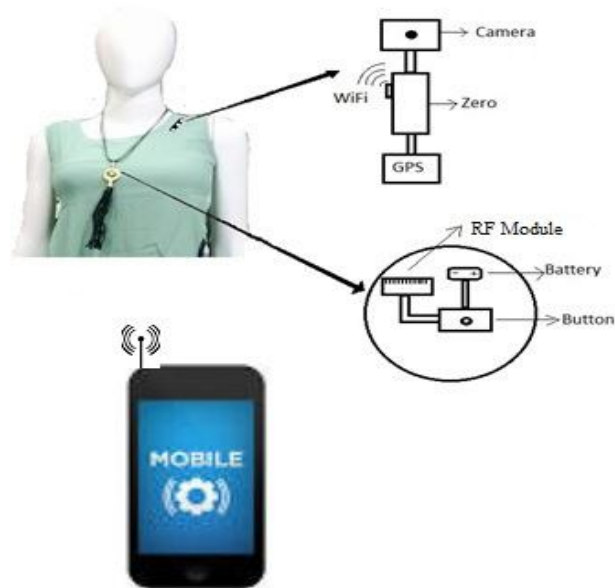2. GPS MODULE

3. DATA SHARE MODULE

4. RASPBERRY PI MODULE

Figure 1: Architecture of the RAKSHA PENDANT

4. CONCLUSION

The greatest issue that our world is facing today is "Protection of weaker society". The pendant together with the mobile app helps in attaining these features. This application helps the tracking of the root device through GPS and video clip which will help the law enforcement authority to rescue the person in danger as quickly as possible from the anti-social elements. Thus it keeps the victim more close to their family, friends and authority.

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