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INTEGRATED SMART APPLICATION FOR WOMEN'S SECURITY

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Abstract:According to WHO (World Health Organization) day by day violence against women's increased and less security provided while travelling. This paper presents the web application which is accessible to both the normal and smart phone users and mobile application for Smartphone users with the internet connection to provide the security. We are using the concept QR (Quick Response) codes and Embedded Human Readable codes (EMR) which are generated based on the license number and unique identification number according to their country for the vehicle owners or drivers. When user starts travelling, user may required to scan the QR code or EMR code, after scanning the code user will get the details of the driver. User and driver details will be stored in the database. User wants to share the details of the driver then user can share to the registered contacts. After reaching the destination user has to click the button safely reached then the user has to enter the security pin which is set by the user while creating profile. If anyone try to forces the user to enter the security pin or user in critical situation then user has to enter the pin in reverse order or user can click on emergency button then user location will be traced through GPS after that location, driver and user details immediately forwarded to nearby police station. Anybody tries to do fraud then their profile will be deleted permanently. This is also useful in investigations to identify the criminals easily.

Keywords:Embedded Human Readable Code,GPS, Mobile Application, QR code, Security, Web Application.

I. Introduction

Providing the security for women is the major challenge nowadays. According to WHO 35% of the woman facing many problems like sexually harassed or kidnapped all over the world mostly they are happened while traveling it may be by auto drivers, cab drivers and taxi drivers. However there is less security provided for tourists also. The use of smart phones increased widely nowadays so it is easy to provide the security through smart phones by using its features. Sometimes fake case made against innocent people it is difficult to find whether the person is criminal or not. If more security provided then the growth of the working women will be increases at faster rate because they can travel safely.

Many attempts are made to make women journey safer [1-10] but they are done at client side but this paper provides the solution to those problem by providing the security for both the client side and driver side.

II. Existing System Problems

There are so many disadvantages for the existing system. May be the driver can give the wrong details to the customer so if the customer send the details to the concern passenger there is no use of those details.Few mobile applications providing security through mobile shaking but we don't know whether peoples are generally shaking the phone or in threaten.Sending the details to the registered candidates through SMS but may be the people too far from the threaten person so it is difficult to rescue. There is a possibility of makingfalse cases against some person so it is difficult to identify the person who is making fraud.All the applications implemented for smart phones only but there is no security provided for the non smart phone users.

Solutions to these problems:

In this project driver and passenger details validated to know whether the correct details are given or not by using unique identification number. Passenger scans the QR Code first while enteringinto the vehicle so it is easy to find the details of the criminal and when passenger in danger than passenger can click on emergency button so no mismatches happen. Here the present study proposes sending the details of the passenger and driver details to the nearer police stations so even though registered candidates not available they can be rescued through polices. If more than two false complaints made then there profile will be deleted from the database.

The present study provides the security for the smart phone users as well as non smart phone users by using IMEI number using that number it is easy to track the non smart phones easily.

III. System Design and Implementation

A. Block Diagram:

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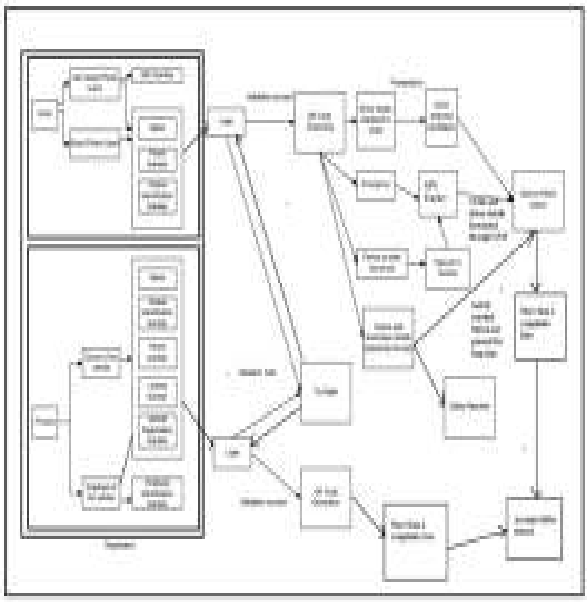

Fig 3.1 Block Diagram

Customer Registration processessamefor both the smart phone and non smart phone users.Owners/drivers registration process completedfirst to get the QR code for the vehicle. If there are employees who run that vehicle then both the owners and for all the divers who are using the vehicles all the details should be completed. There are 2types of QR codes generated for owners and that QR code scanned by the customers. After scanning the QR code all the details about the driver will be displayed for the customer. If customer wants to share those details then they can share with registered customers. Customer has to enter source and destination results those details will be stored in the database. If any problem occurs during travelling customer can click on the emergency button then through the GPS tracker location will be traced and those details forwarded to the registered contacts and near police station. If anybody forces to enter the security pin then without fighting with them simple she has to type the pin in reverse order then through the GPS tracker location will be traced and those details forwarded to the registered contacts and near police station. After reaching destination then customer has to click the safely reached button to close the process.

B. Applications

Applications are used to provide the interaction with hardware and software easily. Present paper proposes both the web and mobile applications. The passenger and driver can complete registration easily by using web and mobile applications.The details of the owner/driver will be uploaded while creating the profile like license number, unique identification number, name, phone number, vehicle registration number and scanned copy of the license to provide the QR code(fig 3.3 shows the example of it). If the vehicle owner is not a driver then he has to create the profile for their employees. Those details are validated to know whether they are correct or not if the details are correct then QR code will be generated. When more than 2 cases files against them and they are confirmed as they are criminal by the police then there account will be deleted and QR code will be removed.Profile for the customer also should be created to identify the person and if the false cases filed then it will be easy to identify the person who made false cases more than 2 false cases filed then there account will be deleted. The passenger details like unique identification number, name, phone number, emergency contact numbers and if the non-Smartphone user then IMEI(International Mobile Equipment Identity) number should be provided after validating all the information

Web Application:

A web application or web app is a client–server computer program in which the client (including the user interface and client-side logic) runs in a browser. Web Application can be applicable for both the non smart phone and smart phone users. Mostly it will be helpful for non smart phone users because smart phone users can use mobile application. Non smart phone users can register through the web application and while travelling they has to enter the all information in webApplications like Embedded Human Readable Code and source and destination results. For the non smart phone user's location will be traced through the IMEI number which will be provided by the passenger while creating the profile. Smart phone users can also access web applications easily.

Mobile Application:

A mobile app is a software application developed specifically for use on small, wireless computing devices, such as Smartphone's and tablets, rather than desktop or laptop computers.

This paper deals with the Mobile Applications to provide the security to the woman easily. Everybody maintains their phones in their hands so it is easy to provide the security. What are the facilities provided through web application all the applications accessible to the mobile applicationsalso.Using***GPS (Global Positioning System)*** it will be easy to find the user location within the less time and those details forwarded to emergency contacts and police stations using GSM.

C. QR Code:

QR code is a special type of barcode that can encode information like letters, numbers and kanji characters. QR code gives the responses quickly with that feature it becomes more popular. There are various types of sizes available in the QR code they are called versions.

Encoding QR Code:

The following algorithm used to gives the detail information about creating the required QR code for this project.

Step1: Data Encodation

Step2: Error Correction Codeward generation

Step3: Module placement in matrix

Step4: Masking pattern selection

Step5: Format information

Step6: Final symbol construction

Following rules also used to create the best QR code.

Use the alphanumeric mode to create the QR code because license and unique identification consists of numbers and alphabets.

The number of bits in the length field depends on the encoding and the symbol version. Version 10-26 consists of 11 bites

The error correction level M used in this project it recovers 15% of data

Alphanumeric mode provides maximum 4296 characters a 40-L code contains in that mode.

Add the 4-bit mode indicator that identifies it and add the character count indicator

If the QR code is larger than version 2 than break up the data codeword's into smaller parts.

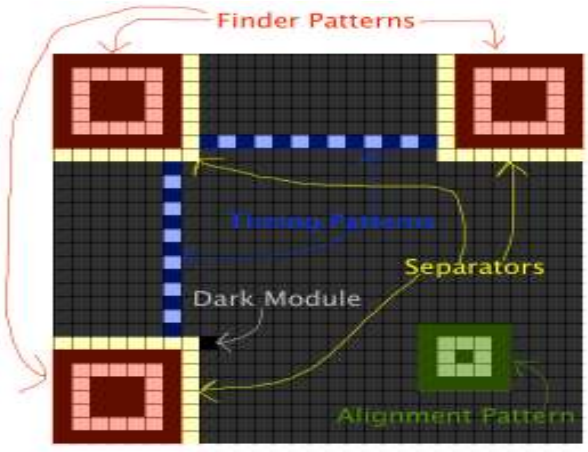

Fig 3.2 Function Parameter of the QR code

Finder patterns

The **finder patterns** are the three blocks in the corners of the QR code at the top left, top right, and bottom left.

The **separators** are areas of whitespace beside the finder patterns.

The **alignment patterns** are similar to finder patterns, but smaller, and are placed throughout the code. They are used in versions 2 and larger, and their positions depend on the QR code version.

The **timing patterns** are dotted lines that connect the finder patterns.

The **dark module** is a single black module that is always placed beside the bottom left finder pattern.

Sample Output:

QR code created with the driver license image when the customer scans this QR code then all the details about the driver will be displayed.

Fig 3.3 QR code sample output

Decoding QR code:

Following flowchart gives the detail information about decoding the QR code at the client side.

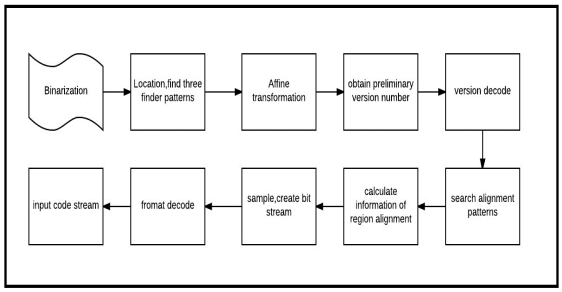

Fig 3.4 Decoding QR Code

Embedded Human Readable Code:

The Bar code and Text are embedded as a single entity/object. The single object is simple to use and can be easily copied to other applications such as a graphic editor. This capability is only supported by selected barcodes.

Non Smart phone users can use this feature because below the barcode text will be displayed so passenger can upload those details in web applications so it will be the best

option to provide the security through this code. Following figure is the example of Embedded Human Readable Code.

Fig 3.5 Embedded Human Readable Code

D. GPS:

In our women safety system the GPS acts as a receiver as it takes the signal from the satellite and works as shown below:

Working of GPS: The GPS receiver is used to get accurate geographical location by receiving information from satellites. It receives information from satellites and gives location information in terms of latitude and longitude. It gives latitude and longitudes with accuracy of degree-minute second. Using this latitude and longitude co-ordinates one can easily trace out the location of the vehicle and track the position of passenger in case of any problems.

E. GSM

GSM stands for Global System for Mobile communication. It was originally developed with the help of digital technology which can carry data up to the rate of 64kbps to 120mbps. It uses the variations of Time Division Multiple Access (TDMA) technique for transmission of signals. GSM provides many services; some basic services are voice and data services including roaming services. Roaming is the ability to use GSM phone number in another GSM network. The working of GSM starts with digitization and compression of user data then sending the user data stream through a channel. Its frequency band limit is either 900MHz or 1800MHz. In our system, one of the services of GSM is Short Message Service (SMS) which is used to share the location information from the system to helper's mobile.

AT Commands for GSM:

AT commands are instructions used to control a modem. AT is the abbreviation of ATtention. Every command line starts with "AT" or "at". That's why modem commands are called AT commands. Many of the commands that are used to control wired dial-up modems are also supported by GSM/GPRS modem and mobile phones. Besides this common AT command set, GSM/GPRS modems and mobile phones 7 support an AT command set that is specific to the GSM technology, which includes SMS-related commands like AT+CMGS (Send SMS message), AT+CMSS (Send SMS from storage), etc,. The starting "AT" is the prefix that informs the modem about the start of a command line. It is not part of the AT command name.

UART microcontroller:

In our project we make use of UART microcontroller to control the GPS module and GSM modules. UART is a computer hardware that translates data between parallel and serial forms. A UART is usually an individual integrated circuit (IC) used for serial communications over a computer or peripheral device serial port. UARTs are now commonly included in microcontrollers. Compared to other microcontrollers, UART microcontroller gives high baud rate with GPS. Baud rate represents number of bits transmitted for a second.

Security PIN:

This paper deals with security pin to provide the security. The security pin validatedto know whether the user using the application or other than user using it. Customer safely reached the destination then customer has to enter security pin to validate customer safely reached or if anybody forces to enter the security pin without arguing with them just enter the pin in reverse order than customer location tracked with GPS and using GSM alert messages will be forwarded to registered candidates and near police station.

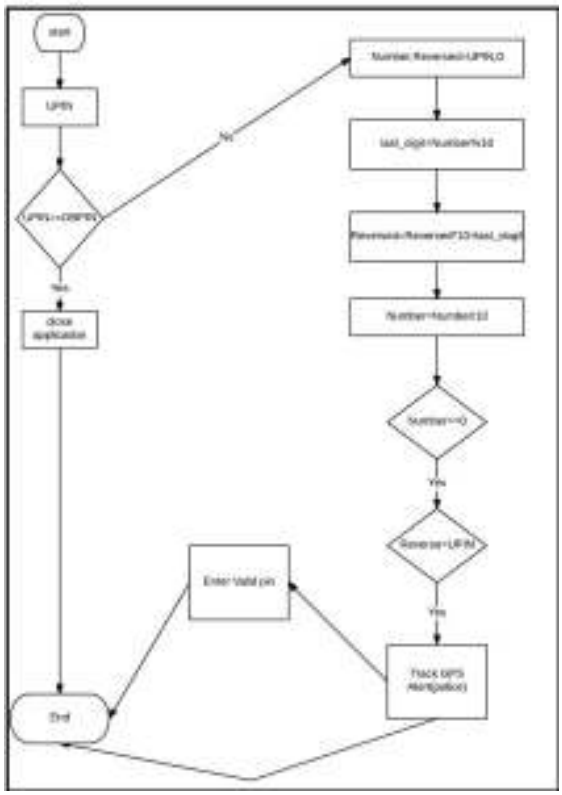

Fig 3.6 Security PIN

IV. Conclusion&Future Enhancement

This paper deals with various technologies like QR code, Embedded Human Readable Code, GPs, GSM which are used to provide the more security for the women while traveling. When third party has the information about the passenger and driver then the crime rate will be decreased. If the cab or taxi consists of QR code then it will be easy for customers to find whether the vehicle safe to travel or not because if they are criminals QR code will be removed from the database and vehicle. In the database all the details about passenger and driver will be stored those details will be used to provide the security and as well as in investigations. It is easy to find the false cases because all the details will be stored like source and destination, QR code to know whether passenger travels on that vehicle or not. For the non smart phone users also security provided by using the IMEI number. More security provided for the customers with these technologies easily.

To rescue the passengerwithinshort period then direct communication with the police should be maintained instead of the GSM service. Some emergency provisions at the passenger side should be provided without waiting for the police or other helpers. More security provided to develop better QR codes

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References

[1] Paradkar, A., & Sharma, D. (2015). All in one Intelligent Safety System for Women Security. International Journal of Computer Applications, 130(11), 33-40.

[2] An Innovative Approach for Women and Children's Security Based Location Tracking System", Computer Society of India, pp 1-19.

[3] D. Monisha, M. Monisha, G. Pavithra and R. Subhashini, "Women Safety Device and Application-FEMME", Indian Journal of Science and Technology, vol. 9, no. 10, 2016.

[4] D. Chand, S. Nayak and K. S. Bhat, "A mobile application for Women's Safety: WoSApp", TENCON 2015 - 2015 IEEE Region 10 Conference, no. 15698513, 2015.

[5] R. Yarrabothu and B. Thota, "Abhaya: An Android App for the safety of women", India Conference (INDICON), 2015 Annual IEEE, no. 15903052, 2015.

[6] S. Shambhavi, M. Nagaraja and M. Z Kurian, "Smart Electronic System for Women Safety", INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH IN ELECTRICAL, ELECTRONICS, INSTRUMENTATION AND CONTROL ENGINEERING, vol. 4, no. 3, 2016.

[7] N. Mahmood Hussein and S. NajimAlSaad, "Alarm System using Microcontroller , GPS and GSM Devices", QalaaiZanist Scientific Journal, vol. 2, no. 2, 2017.

[8] "VEHICLE TRACKING SYSTEM USING GPS & GSM", International Journal of Recent Trends in Engineering and Research, vol. 3, no. 4, pp. 572-575, 2017.

[9] A. Ansari, B. Pratiksha, M. Tejal R and Y. Snehal M, "Women Security System using GSM & GPS", International Journal of Innovative Research in Science, Engineering and Technology, vol. 6, no. 3, 2017.

[10] A. Chandoskar, S. Chavan, Y. Mokal, P. Jha and P. Kadam, "Smart Gadget for Women's Safety", International Journal on Recent and Innovation Trends in Computing and Communication, vol. 4, no. 1, pp. 28-31, 2017.