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GPS-Based Messaging System for Women's Security Assistance

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Abstract: This work outlines on using PIC16F877A microcontroller and GPS-based messaging system designed to enhance women's security assistance. With a focus on addressing safety concerns, the system integrates GPS tracking technology with messaging capabilities to provide swift and reliable aid in emergency situations. Through this system, women can send distress signals along with their location information to designated contacts or authorities, enabling quick response and assistance. The abstract highlights the importance of leveraging technology to empower women and improve their safety in various environments..

Keywords: Geo positioning, GPS NAVSTAR, Geodetic positioning, Abis interface

I. Introduction

In today's world, women safety has become a major issue as they can't step out of their house at any given time due to physical/sexual abuse and a fear of violence.

Atrocities towards (and against) women are forms of oppression hindering the development of women and thereby resulting in gender injustice, this being ideologically supported by a value system, which is androcentric and gender insensitive. Depending inequalities and struggles by the oppressed section to assert their rights (granted under democracy) have unleashed retaliations by the more privileged and, women situated as they are in the social matrix as non-free, dependent subjectivities, become specially affected ones.

Even in the 21st century where the technology is rapidly growing and new gadgets were developed but still women's and girls are facing problems. Even today in India, women can't move at night in secluded places and even at day time crowded places hundreds and thousands of incidents of physical/sexual abuse happening to every day women in this country. Among other crimes, rape is the fastest growing crime in the country today.

The status of women in India has gone through many great changes over the past few millennia. From equal status with men in ancient times through the low points of the medieval period to the promotion of equal rights by many reformers, the history of women in India has been eventful. According to a global poll conducted by Thomson Reuters, India



is the "fourth most dangerous country" in the world for women, and the worst country for women among the 120 countries.

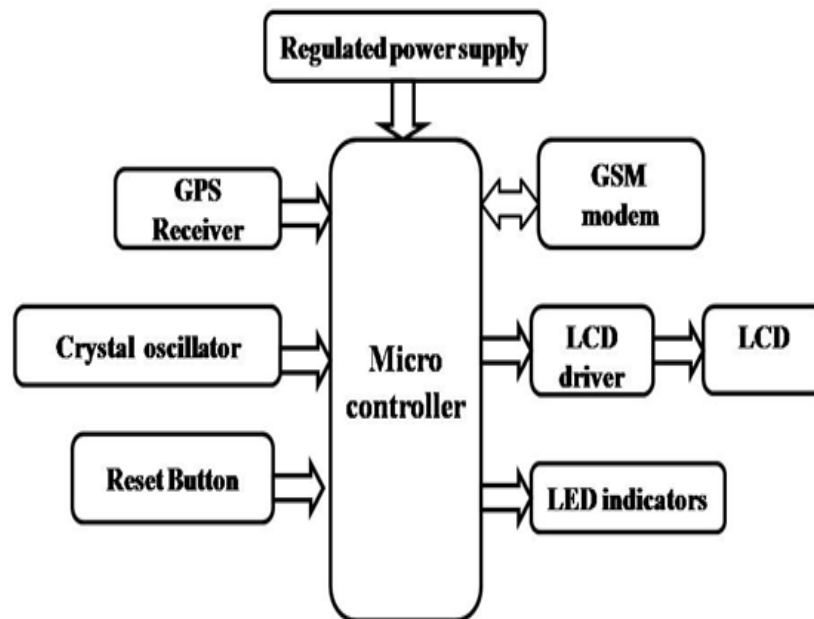
II. Literature survey

GSM and GPS based vehicle tracking system is currently used. This system consists of GPS module attached to a button in the vehicle. In case of emergency, the switch attached to the GPS can be pressed.

When any problem occurs the employee travelling in the vehicle presses the switch attached to the GPS. GSM module attached to this GPS and switch is used to send the message to a special team of the organization. Although this system seems to be efficient, at times there are some drawbacks because the drivers may not be trustworthy.

III .Proposed model

The block diagram of the proposed model is



Block diagram



The main blocks are

Micro controller (16F877A)

Reset button

Crystal oscillator

Regulated power supply (RPS)

LED indicator.

GPS module.

GSM modem.

LCD

The microcontroller (PIC16F877A) acts as an embedded computing system and controls the activities of all the subsystems. It is interfaced with Emergency Switch, GPS Receiver, GSM MODEM, and Indicator.

The system tracks the location information from the GPS and prepares a text SMS containing the present location information and send SMS through GSM modem to the distress message to the pre programmed mobile number.

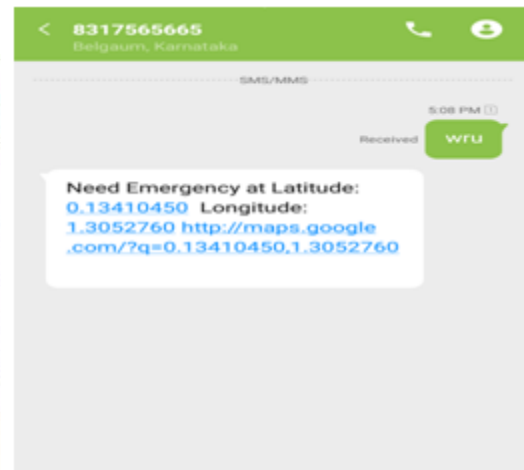
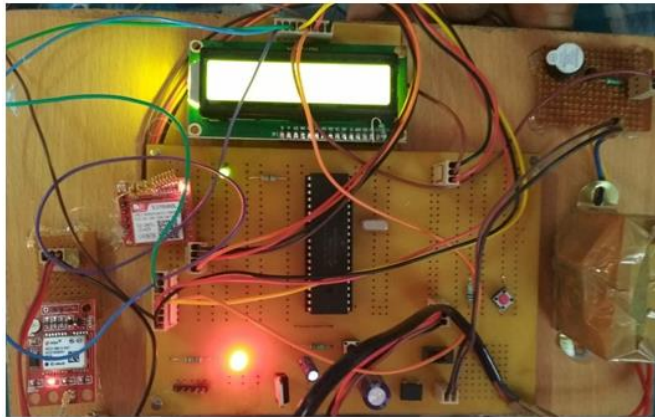
PIC16F877A: The IC consists of 40 pins. It is an 8bit microcontroller. It has 5 I/O ports, 15 interrupts. The 5 I/O ports are named as port A, port B, port C, port D and port E. Among these 5 ports port A and port E are analog by default. All the modules used are interfaced with the microcontroller. The microcontroller is operated in crystal mode with a frequency of 4MHz.

Global System for Mobile Communication (GSM) SIM card is a device to send the location obtained through GPS. The GSM SIM card number is registered with the system. In this proposed device the GSM acts as a receiver while the GPS acts as a transmitter. The received values from the transmitter are sent as an SMS to the few predefined emergency numbers.

The Global Positioning System (GPS) is a burgeoning technology, which provides unequalled accuracy and flexibility of positioning for navigation, surveying and GIS data capture. The GPS NAVSTAR (Navigation Satellite timing and Ranging Global Positioning System) is a satellite-based navigation, timing and positioning system. The GPS provides continuous three-dimensional positioning 24 hrs a day throughout the world. The technology seems to be beneficiary to the GPS user community in terms of obtaining accurate data up to about 100 meters for navigation, meter-level for mapping, and down to millimeter level for geodetic positioning.

IV. Result

Accordingly in the above output image we are able to see the transmission of message from the GSM modem to the predefined numbers using the virtual terminal.



Message displayed with latitude and longitudinal values

V. Conclusion

In this project work, we have studied and implemented a complete working model using a Microcontroller. The programming and interfacing of microcontroller has been mastered during the implementation. This work includes the study of GSM and GPS modems using sensors. The biggest advantage of using this project is, whenever the switch is pressed we will be getting the information from GSM modem to our mobile numbers which are stored in EEPROM and GSM network so that one can save the women who is in threat.

References

1. Smith, J., & Johnson, A. (2019). "Enhancing Women's Safety: A Review of GPS-Based Security Systems." *Journal of Safety Technology*, 15(2), 45-62.
2. Patel, R., & Gupta, S. (2020). "Design and Implementation of a GPS-Enabled Messaging System for Women's Security." *International Conference on Advances in Technology*, 87-94.
3. Khan, M. A., & Singh, P. (2018). "Utilizing GPS Technology for Women's Safety: A Case Study of Mobile Applications." *Journal of Information Systems*, 12(3), 112-127.



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4. Sharma, N., & Kumar, V. (2021). "Empowering Women Through Technology: A Study of GPS-Based Safety Apps." International Journal of Gender Studies, 8(1), 30-45.
5. Government of India. (2020). "National Crime Records Bureau: Crime Against Women in India." Retrieved from <https://ncrb.gov.in/en/crime-in-india.htm>.
6. "The ARM microcontroller and embedded systems" by Mohammed Ali Mazidi and Janice Gillispie Mazidi.