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System Access Control for Women's Safety Using Raspberry Pi

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ABSTRACT: Women's safety is a very important issue due to rising crimes against women these days. Even though several legal and technological steps are adopted worldwide, women's safety continues to be an international concern. The ability to locate and track women is a vital issue to both parents and working office. Identification and tracking can be achieved, with today technologies in different ways. This project offers the following solutions for women's safety. GPS based tracking for locating women in predefined areas such as Offices and other public places. GPS is used for tracking women's location anywhere. GPS based tracking is used for helping parents and guardians to keep an eye on the women's wherever they are. GPS is a most promising and growing technology for automatic identification and camera is used for capturing moving and non-moving objects. Women's tracking is important to enhance security for working girls.

KEYWORDS: IoT, GPS, women safety.

I. INTRODUCTION

Sexual Harassment has been considered to be in number fourth position against women in India. Survey results shows that around more than 20000 cases were registered against women crime and also from the last 10 years, the crime against women statistics is increasing steadily. There is a major need of protecting women from harassments, sexual abuse, and violence by implementing challenging systems with technological requirement. As we cannot estimate the happening of incidents but still one can reduce the chances of sexual abuse, violence, assault by having all safety tools nearby and can easily vanish from the danger situations. This can create a safe environment and also creates a good support for the victims. Here we introduce a system which makes sure the women protection. The device can be easily carried and could be taken whenever they sense the danger. The project idea is to provide a swift responding and reporting safety device for women. We can get the exact location of the victim by using the GPS it sends the longitude and latitude of the victim so that, police can easily find the victim and the incident can be easily avoided and can save the women, punish the culprit. Using the IoT platform one we can track the information of the women remotely. This will help to reduce the crime against the women.

II. RELATED WORK

In 2021"A Holistic Framework for Crime Prevention, Response, and Analysis With Emphasis on Women Safety" was proposed by Meetha V Shenoy. Methodology is used to prevent crime using Geographic Information System (GIS) and to identify hotspots and patterns of crime. CONS: They can't track the live location of the person.[1] DivyaChitkaraNipun Sachdeva Yash Dev Vashisht suggested " Design of women safety device " in 2019.The Methodology used here is the person using the glove to activate the circuitry installed to attack the oppressor and protect her from any danger. CONS: This ladder network involves complex circuitry connections.[2] Dr. ritajain, abhishekchakraborty, surbhi Upadhyay proposed " women safety device " in 2018. The methodology is used to sensing the emergency situation, this device fetches the location of women and sends it to emergency contacts via Global System for Mobile module. CONS: Not all the times the detection of heartbeat rate and temperature sensor may turn out to be an emergency situation.[3] Glenson toney, dr. fathimajabeen, puneeth s proposed " design and implementation of safety armband for women and children using arm7 " in 2017. The paper proposes an manual device which would help the victim to alert others during emergency situations. CONS: The size of the band mentioned is not compatible. [4] keerthanakumaret, al. Proposed, "design and Implementation of a novel device for women security Using RFID and GSM technologies" in 2016. The technology is used to developed a prototype that work with the RFID technology to get the information and communication can be done through GSM. CONS: RFID is a old technology and it is hard to implement.

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III. PROPOSED ALGORITHM

We've presented a prototype for women's safety. Our proposed system contains vibrating sensor, vibration motor, heartbeat sensor, camera, raspberry pi 4, GPS module and alarm.The heartbeat sensor is used to measure the heartbeat level of the person. Vibrating sensor is used to detect the vibration of victim. Camera is used to capture the attacker's/ culprit image. Vibration motor is used to give vibration to the victim in an unconscious state. The captured image is sent to the parents/ guardian /Police. Alarm is used to alert the people around the victim during emergency situations. GPS module is used to track the live location of the women. In this system, the alert message will be send to parent's/ Guardian's number during dangerous situation. We have also created a web page in which we can see the live location and heart beat level of the women.

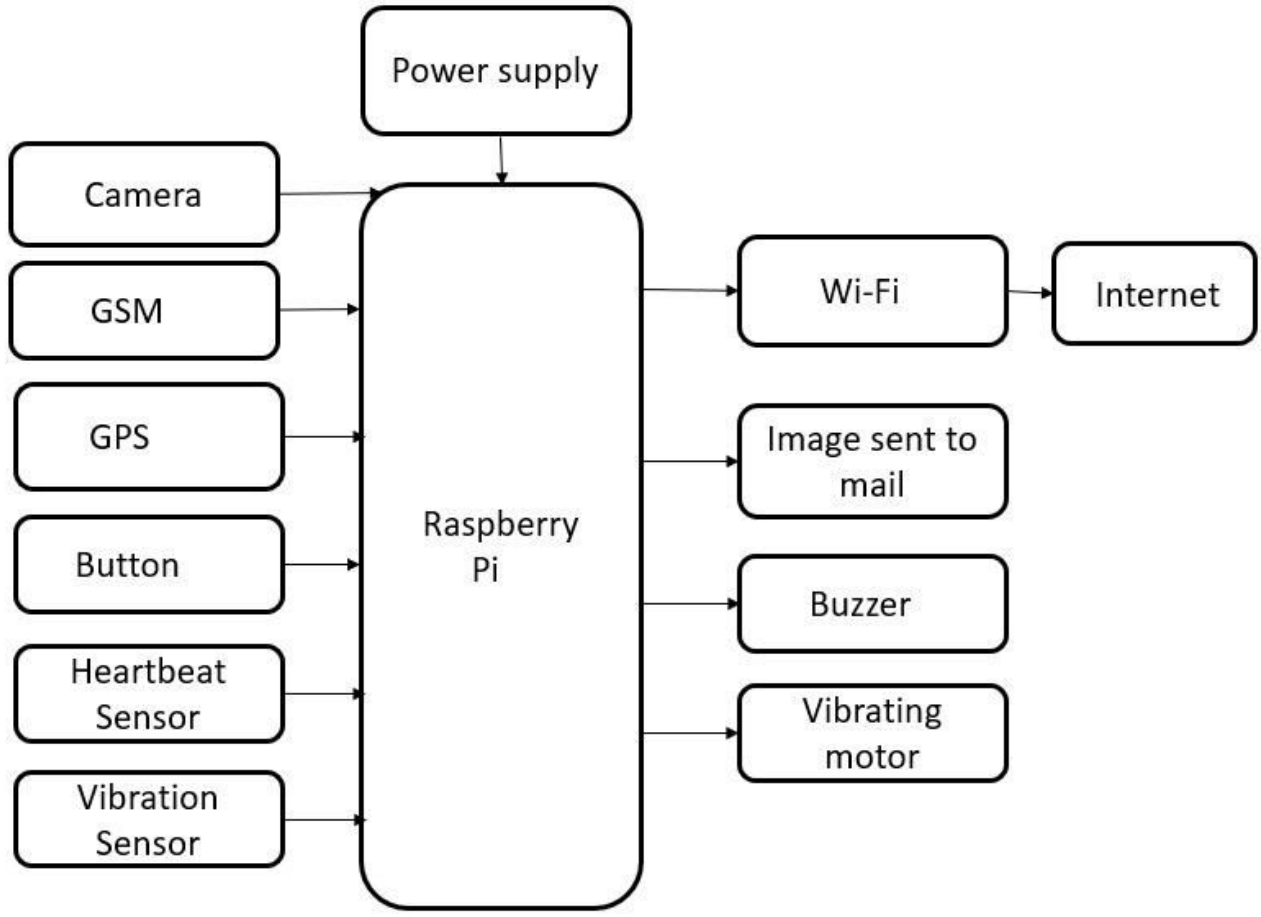

Fig 1: Block diagram

IV. RESULTS

The components and modules used in this prototype have been shown in figure 2 below, when the attacker attacks the victim, the vibration motor detects the vibration and the alarm operates and produces a sound to get help from the neighbouring people and alert message will be send to the parents so that parents can know about the situation and the culprit image will captured using camera, the captured image will be directlysend to parents and police mail id using IOT. Using GPS the live location will be tracked and the latitude and longitude of the women will be send through

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SMS. If the heart beat level goes low or the women feel unconscious vibration motor produces vibration to bring back to the normal state.

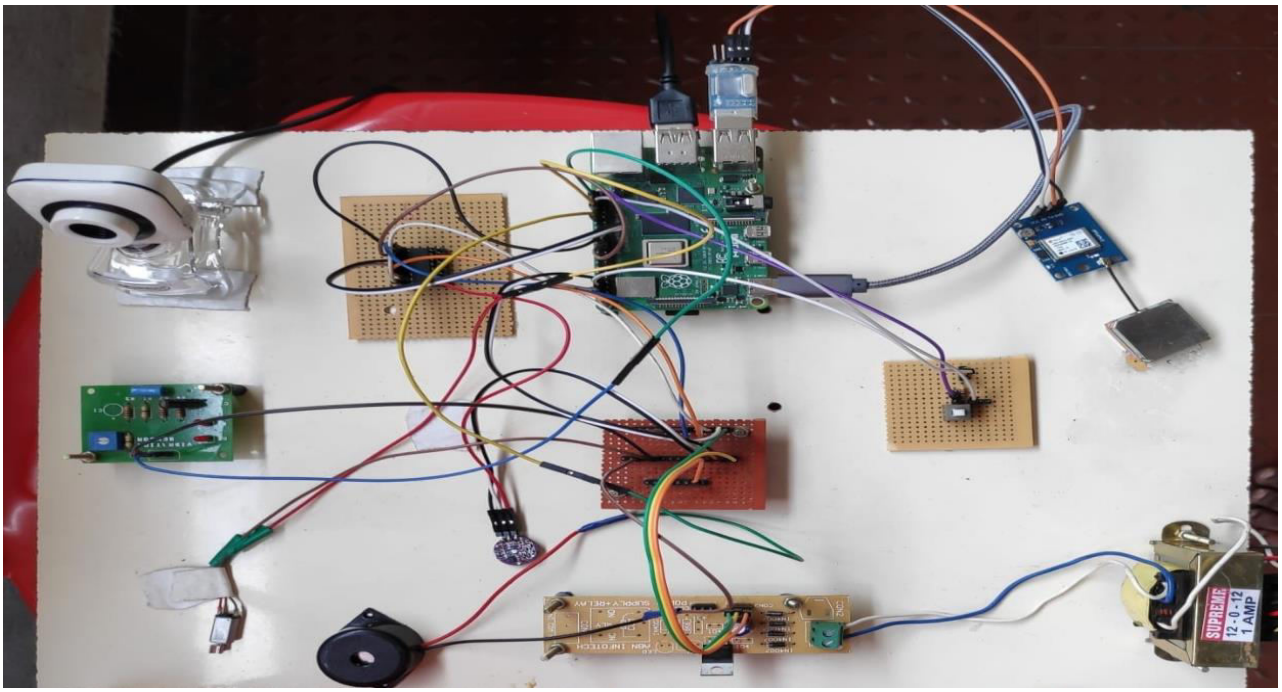

Fig 2: Kit Diagram

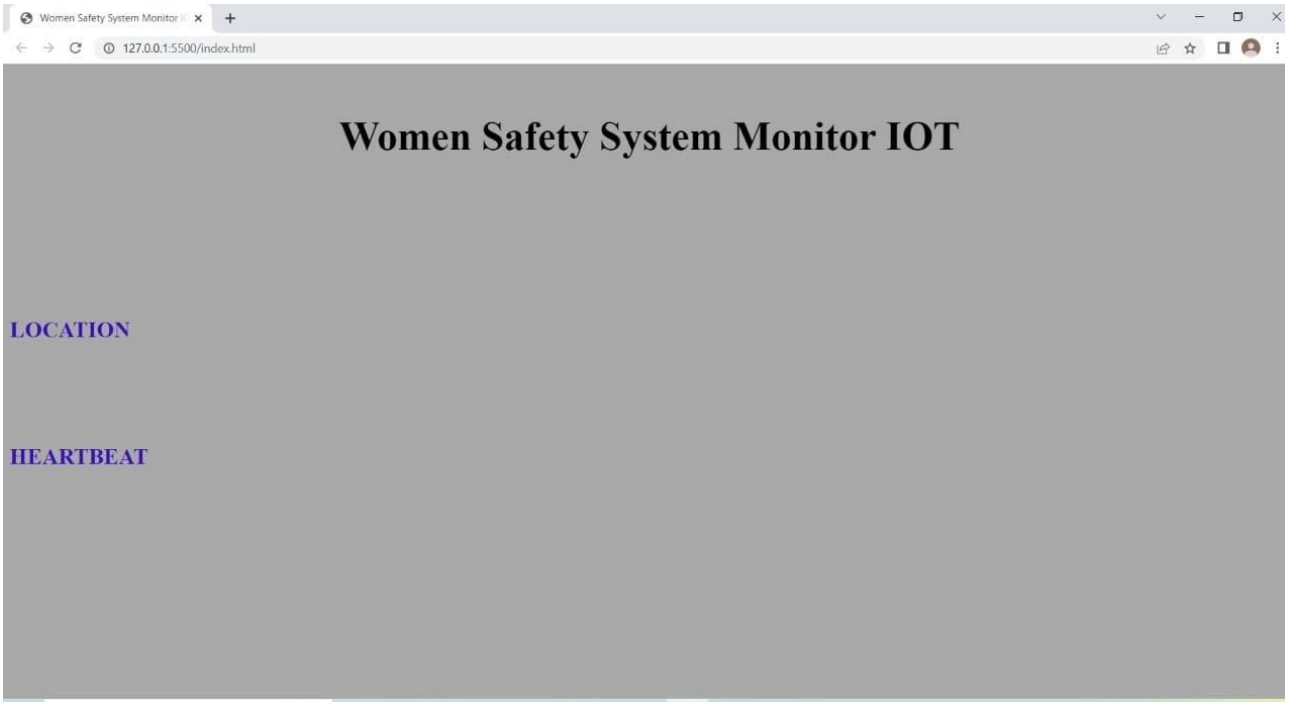

Fig 3: Web Page

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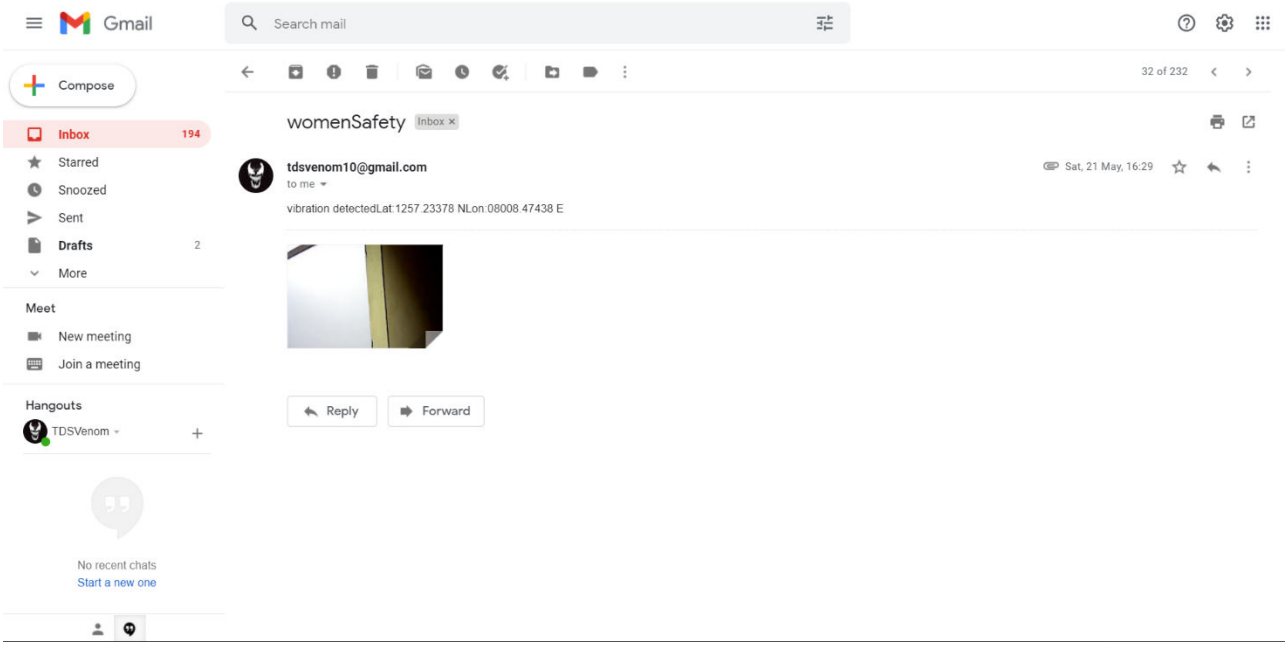

Fig 4: Image sent to mail

V. CONCLUSION AND FUTURE WORK

This system detects and sends the alerts for the dear ones with the location coordinates of the women without the requirement of her interaction in critical times. It sends an emergency message automatically to the relatives and nearby police station. The culprit image will be send to parents or police mail id for easy identification of the culprit. In web page parents can see the live location and heart beat level of the women. The main advantage of our proposedsystem is that both automatic and manual mechanism is implemented. It is also cost-efficient and easy to use. The proposed system can be further developed with capabilities like recording audio, video of the culprit when the alert mechanism is activated which can be produced as a piece of evidence in the court.

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