Guardian Gadget - Human Safety Device

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Abstract— ln the present-day scenes human safety is considered to be the major problem in both urban and rural areas. Human safety is a very important issue due to rising crimes against human these days. To help resolve this issue we propose a human safety system that provides self-defense and also consist of a device with salient features. This device consists of a system that ensures alerts in case a human is harassed or the person thinks they are in trouble. Also, we have a watch which has a camera which captures the image for surveillance. We are also working on an Android application that will serve as a backup for the device and will make use of the mobile's built-in features.

Keywords—Human Safety, Self-defense, GPS, GSM, Watch, Application.

I. INTRODUCTION

India, which sees itself as a promising superpower and economic hub, can only achieve its goal if and only if a large number of women participate in the development process to reduce the possibility of physical violence (robbery, sexual assault, etc.) by keeping all aid tools ready to safely escape from violent situations. This reduces risk and brings help when it is needed. Specially designed security device for women in times of emergency and distress. It is simple to use and transport, and it has a variety of functionalities. It is a personal safety device that is designed to keep you and your friends safe at all times. The issue of women's safety has long been a concern in society. With the increasing instances of violence and harassment against women, it is imperative that effective measures be taken to ensure their safety. One such measure is the implementation of a woman safety system. A woman safety system is a set of technologies and processes that aim to provide women with a sense of security and protection. These systems can range from simple emergency hotlines to more complex systems that use GPS tracking and other advanced technologies. In this paper, we will explore the various types of woman safety systems that are currently available, their features and benefits, and how they can be implemented in various settings. We will also discuss the challenges and limitations of these systems and suggest potential solutions to address them. Overall, the goal of this paper is to provide a comprehensive overview of woman safety systems and to highlight their importance in promoting the safety and well-being of women. Our goal is to provide you with the quickest and easiest way to contact your local assistance. The basic approach (single click) is to intimidate the instant location and a distress message to the cops and the preset numbers, thereby averting an unfortunate incident and providing real-time evidence for action against the perpetrators of crime against women.

II. LITERATURE SURVEY

GPS Based Women Safety Device [1] is women's safety gadget described in this paper is intended for usage in India. For ladies who might be in danger, this device serves as an emergency device. An SMS with the location's latitude and longitude will be sent to a list of pre-fed cell phone numbers when the woman clicks the panic button on the device. In this manner, anybody who receive the message will be able to utilise the coordinates to locate the woman in need and offer assistance. The purpose of this device was to reduce India's rising rate of crime against women.

SMARISA: A Raspberry Pi based Smart Ring for Women Safety Using IoT [4] is to create a wearable gadget that will enable women to defend themselves against sexual assault and harassment. With the help of this very portable and simple-to-use tool, women may effectively and affordably defend themselves from offenders. The article also covers the use of GPS monitoring of the smart phone to obtain the device's coordinates, an alarm message to notify the family and law enforcement, GSM and GPRS elements, and methods for photographing the assailants to help with criminal identification. Women Self Protecting System Using Internet of Things [5] is to provide safety for women and to reduce the crime rate. Nowadays, an individual's safety is jeopardized, whether due to illness or rising crime rates such as sexual assaults, molestation, and abuse. So, to prevent these to a certain extent, this paper proposes an automated wearable smart device to prevent the above-mentioned cause that has access to the internet (IoT). This smart band is connected to the

mobile device through the Bluetooth module. The sensors frequently monitor the body condition of the user, and when an abnormality occurs within the body, which is pre-programmed in the band, it is compared, and when the abnormality is confirmed, the collected data is acquired and activates the preinstalled app, which in turn sends the messages to alert the family, police, and the people who use the designed app.

Lifecraft: An Android Based application system for women safety [7] is to be very useful in an emergency situation while also being distinct from other applications. All of the recent atrocities have prompted us to consider safety concerns. With the help of our application "LifeCraft,". It is an Android app designed for women's safety, though men can also use it in an emergency. It can be triggered by voice command or the SOS button. Every five minutes, until the system is turned off, an alert message with the location is sent to the user-defined numbers. In a crisis, a user may run out of money and be unable to use data to access all of the features. Keeping this in mind, we have planned for an offline mode in which the application can send alert messages but not location, call the helpline number, and do audio.

ProTecht – Implementation of an IoT based 3 –Way Women Safety Device [9] is used to protect women in dangerous situations. The aim of this project is to provide self-defence, an evidence recorder, and tracking of the women. The project uses Raspberry Pi, a Nerve stimulator, Switch, Buzzer, voice activation, GPS, GSM, a camera, and a Mic module. The device is always on self-alert to protect the woman. When the woman is in danger and presses the switch, the Raspberry Pi will activate the Nerve Stimulator which will act in self-defence for the woman by knocking down the person who is assaulting the woman by producing a shock that is active for 2sec. the camera module will capture the image of the person who is assaulting the woman and through raspberry pi, the image will be stored in the server which acts as evidence against the person who is assaulting the woman.

Smart Wearable Device for Women Safety Using IoT [14] is a system that has three sensors which are used to automatically detect any atrocity. These sensors include pressure, temperature, and pulse rate. The pressure sensor detects whether or not excessive pressure is being applied to the woman. The temperature sensor is used to detect temperature variations. The pulse-rate sensor is used to detect any abnormalities in the woman's pulse-rate. These three sensors' readings are combined to detect any critical situation. The device also has a push button that the woman can use if she feels unsafe. When either of the two aforementioned events occurs, a buzzer sounds. When either of the two aforementioned events occurs. GPS (Global Positioning System) is a satellite-based system that determines a person's or object's exact location on Earth

IV.   METHODOLOGY

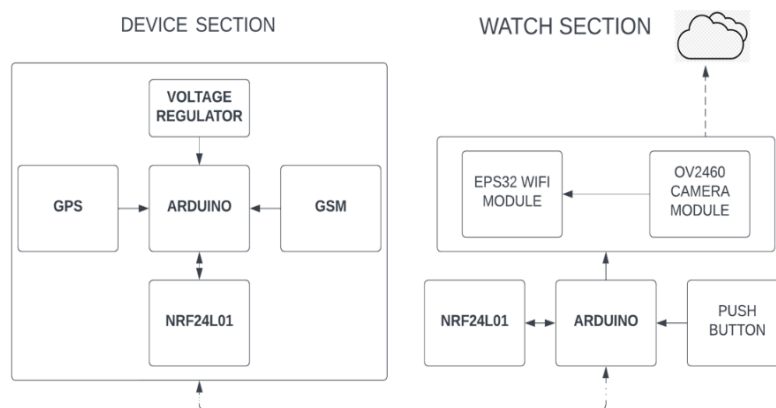The below figure represents the block diagram of proposed work.

Figure: Block Diagram

- When the user turns on the device, all modules are instantly activated. The Arduino will check whether the panic button has been pressed twice within five seconds or not, or whether the person is holding the button for 3 seconds.
- If the button is not pressed for a single time, the watch will not take any further action. However, if the person is in danger and presses the watch button twice in five seconds or holds the button for three seconds, an SOS message will be sent.

- The watch also has real-time camera that monitors the
environment and captures the image of the person assaulting the woman, and the audio recorder will capture the voice of the person assaulting the woman.
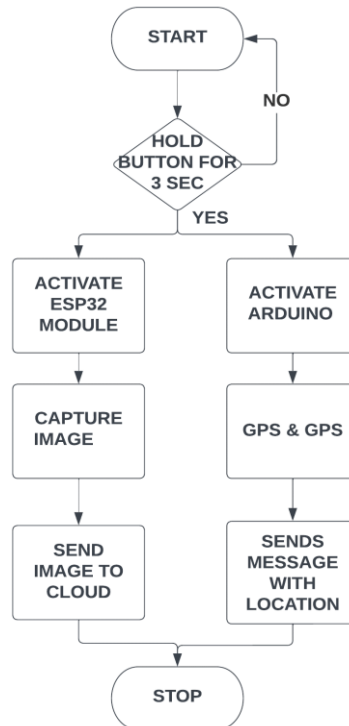
- The Mobile app was created for backup purposes.

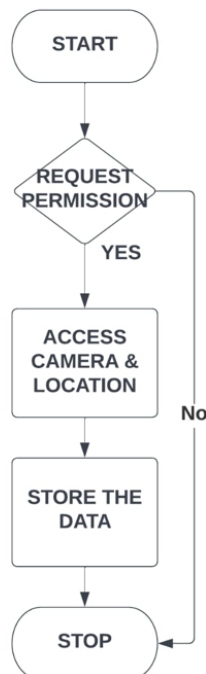Figure: Flowchart (Main Device)

Figure: Flowchart (Application)

All modules are instantaneously active when the user switches the device on. The Arduino will determine if the panic button has been depressed twice in less than five seconds or if the button has been held down for three seconds. The watch will not do anything else if the button is not touched even once. However, an SOS message will be delivered if the

wearer clicks the watch button twice in five seconds or holds the button down for three seconds when in danger. Mobile Application: The watch also includes a real-time camera that records the scene and records the assaulter's image, as well as an audio recorder that records the assaulter's speech. The mobile app was developed as a backup.

V.   RESULTS

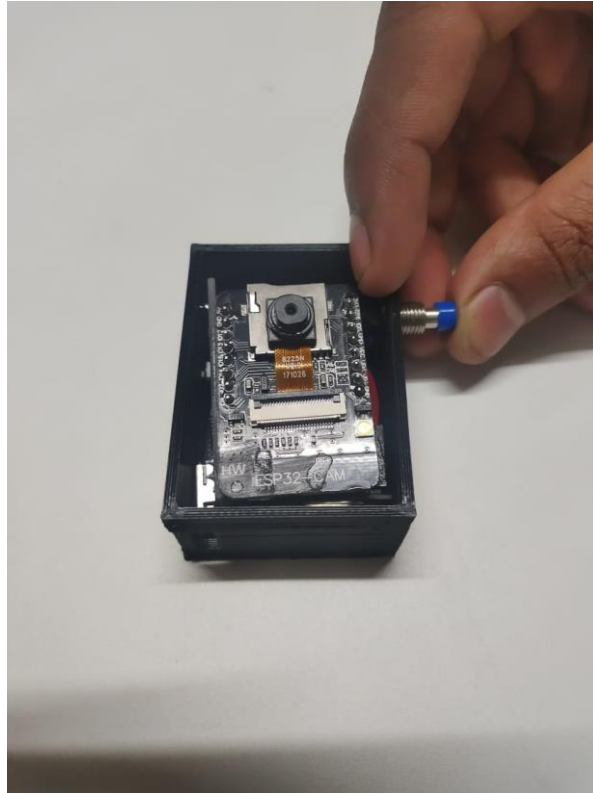Here, the whole system is activated when push button is held for 3 seconds and the process continuous.

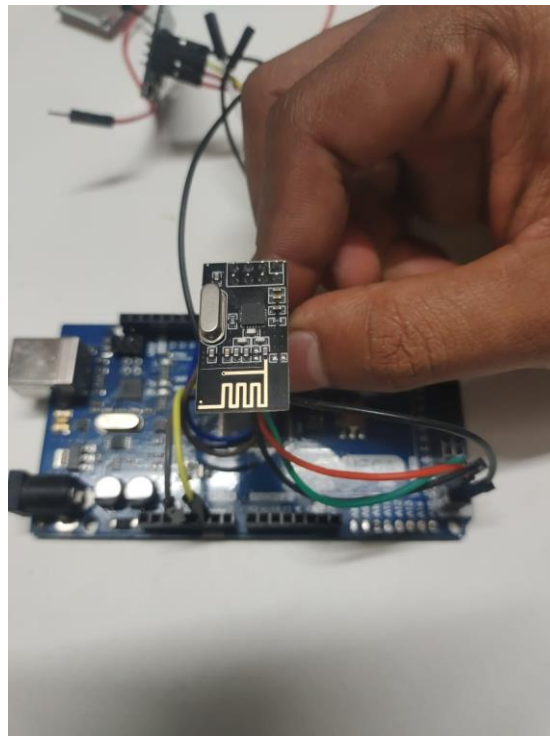Fig: Push Button is held for 3 seconds

Fig: Wireless RF transmission takes place

Wireless transmission of signal takes place from Arduino Nano to Arduino Mega which is present in the main device section.
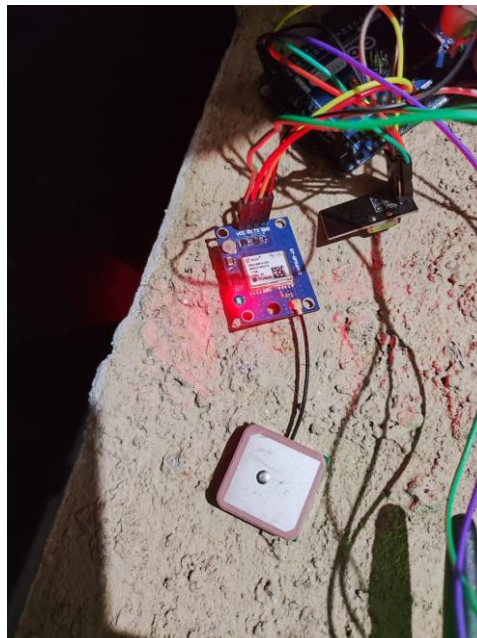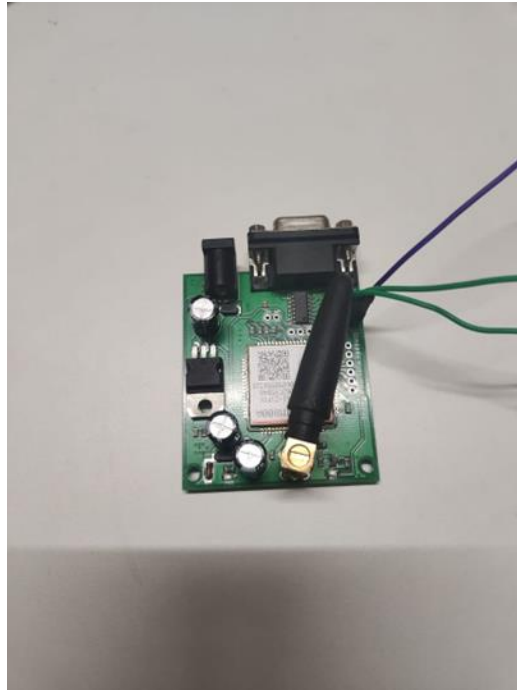

Fig: GPS signal is retrieved

Fig: GSM module send SMS of location and link to view camera

Arduino Mega activates and initiates all the process at once. GPS signal is retrieved and location link is sent through message by GPS module. Even stream link to view from camera is sent in the message.
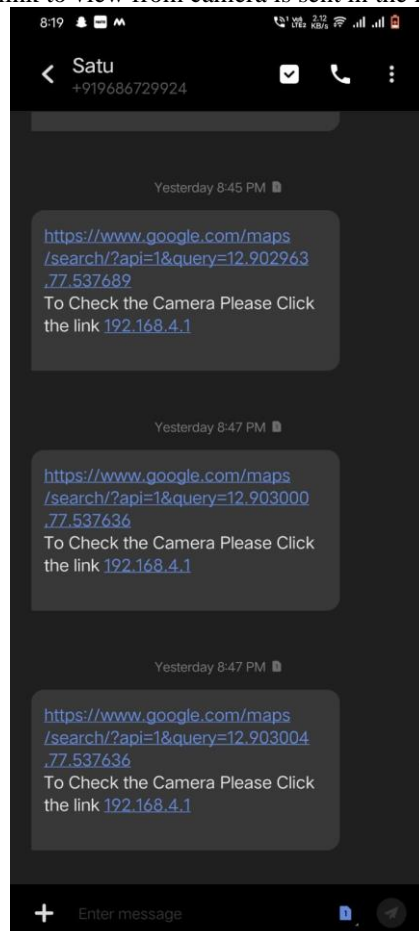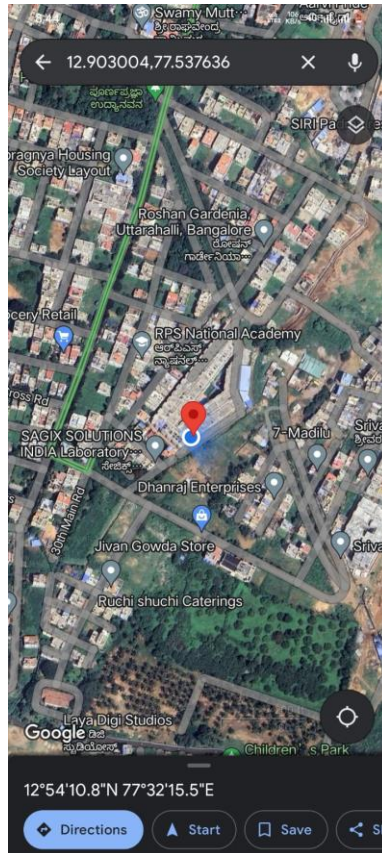

Fig: Message with links are arrived
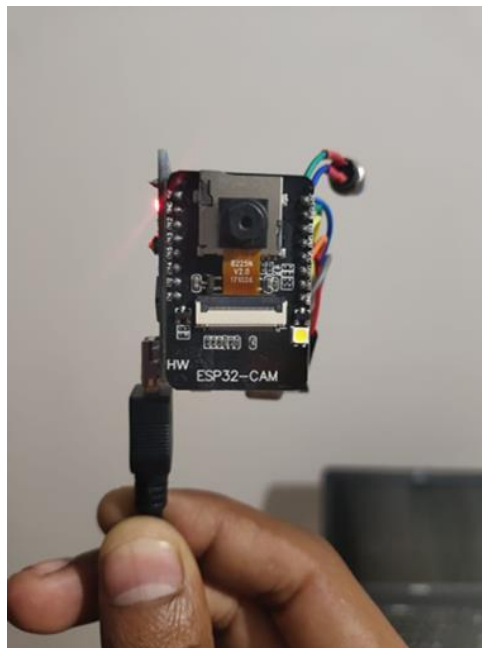
Fig: Live location is seen

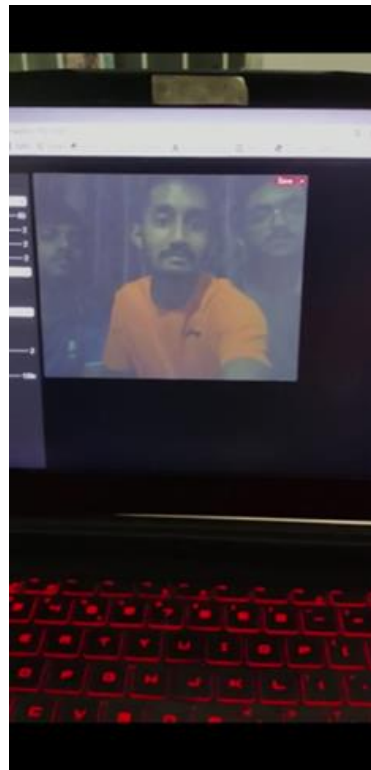Fig: Simultaneously recording of the scene takes place

Fig: Video stream when link is opened

This is the complete process of our whole model.

VI. CONCLUSION

The proposed safety device attempts to provide people with complete security in   contemporary settings. The push button serves as a unique identifier for the user, ensuring that no false alarms are generated and that alerts are raised only in stressful conditions. GSM and GPS are used in the design to give comprehensive security, so that any nearby person is warned about the mishap. Sending text texts alerts close family and police to the victim's current position. If the victim feels the need for self-defense, she or he can employ pepper spray to briefly incapacitate the perpetrator. In addition to the hardware-based design, an Android application is being created to give extra safety features such as group messaging and audio recording and locating nearby safe locations on a map. The study provides a smart gadget prototype for human safety; performance measures must be evaluated for future analysis to establish its efficacy.

VII. FUTURE SCOPE

In the future, we can add
- Bluetooth module that can be used manually or by voice commands to transmit messages.
- Body sensors such as pulse rate sensor can be added.

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