



e-ISSN: 2278-8875
p-ISSN: 2320-3765

International Journal of Advanced Research

in Electrical, Electronics and Instrumentation Engineering

Volume 11, Issue 7, July 2022

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.18

☎ 9940 572 462

☎ 6381 907 438

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Smart Safety Device for Women

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Abstract: There is no safety for women in this modern-days even the technology is developed. Women are not in safe positions anywhere, when they are alone. To prevent these situations, a smart safety device for women is proposed. This project consists of a smart hand-held device that consists of Node MCU and GPS application. Node MCU is used to send alert messages whereas GPS (global positioning system) is used to track the location of the victim and share the location of the victim to nearby police stations and also phone numbers of the victim’s family members. So, this application is helpful for women to make them strong while going out alone. Moreover, for safety measures, shockwave generators are also provided to attack the offenders.

KEYWORDS: shockwave generator, Node MCU, GPS application, hand-held device

INTRODUCTION

As we know that the crime rate against women is increasing day by day Women’s safety has always been an issue. Even in this modern world women are not in a safe position to go out alone or at night times. Traveling alone on lonely roads is not safe. Cases regarding women’s safety are increasing day by day even with the advancement of technology. It is risky for the women to take lonely roads at night and even in day times. Not only women but also children are facing many difficult situations while traveling alone. The security of the woman is a social problem, it needs to be resolved as soon as possible. To prevent these situations, proposed this project. The main aim of this project is to give better security to women. Most women are supposed to work in different environments and surroundings. To prevent these situations “a smart safety device for women is proposed”.

This is a smart handheld device, which can be easily carried out by the person, consists of Node MCU, GPS application, and shockwave generator. This is an IoTbased device. Node MCU has used to connect the objects and let data transfer using the Wi-Fi protocol. Cloud stores the data of the numbers to which messages need to be sent. Node MCU is used to send alert messages through the cloud, whereas a GPS application is used to track the exact location of the victim and send that location to the nearby police station and to the family members of the victim. Moreover for safety, the shockwave generator is also designed, which is used to defend herself from offenders. In case of system failure, women need to defend themselves, so this project is provided a shock wave generator. Relay is used to generate the shock for self-defense. So, basically, the relay is used to attack the offenders. Women’s safety has always been an issue with so much advancement in technology. Whenever women are travelling alone in lonely places and deserted areas, they face a lot of security issues.

II.LITERATURE SURVEY

In this paper, both the device and smartphone are synchronized using Bluetooth. In this case, there are many chances of the device getting disconnected with respect to range problems between the device and the smartphone.[1] They proposed a smart intelligent device that automatically senses information and helps women in" Every single step of life". All the time device cannot sense the current scenario or situation of the women.[2] The author purposed the Design and Implementation of Women’s Auspice System by Utilizing GPS and GSM modules. In this system, they used a GPS module and three pushbuttons. GPS is used to get to the area of the client quickly. In every situation or any emergency situation, there might not be a chance to operate these three push-button system. [3] The author proposed an algorithm for women’s safety using a fingerprint module. Here fingerprint is required for activation of the device, electric shock producing circuit, GSM module, and GPS module for alerting and location tracking. At the time of emergency, it is hard to place the finger in



the fingerprint module and recognition is not possible if there is any undesired stuff (wet or dust) on the finger.[4] The government has introduced various safety measures to protect women, one of which is the development of safety apps. Though there are many safety apps for women, this study focuses on ‘Kavalan’ app, which was launched in 2018 by Tamil Nadu police to ensure women safety. This mobile application seems to have a wide reach as soon it was launched and efforts have been taken by the police department to make sure that citizens are aware of the mobile app.[5]

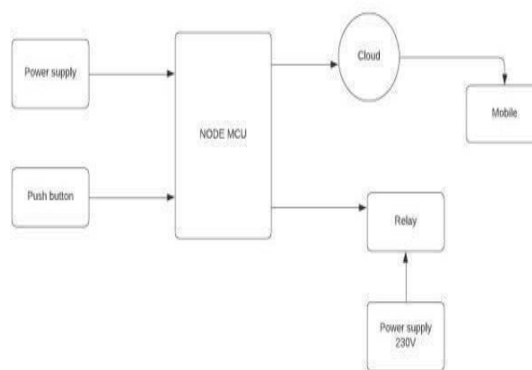
AVR Microcontroller Based Wearable Jacket for Women’s Safety The paper has proposed a portable device that is placed in a jacket. It consists of a switching unit, GPS Module, GSM Module, LED Module, and Buzzer Module.[6] The paper is developed an android application to help women. Application has six options they are Add guardians, SOS, Fake call, Video call, First aid, and Instructions. By clicking on the option “Add guardians” it takes to the other page and it has two options they are “Add from contacts”, and “Add new contacts”. Clicking on Add from contacts application takes information from phone contacts.[7] Role of Facial Image, Analysis is an android application which is based on facial image analysis has given a good knowledge about the problems and further has focused on challenges associated with the problem.

Various factors such as race, gender, age, expressions, etc. are identified as factors that affect the performance of the system.[8]

III.SMART SAFETY DEVICE FOR WOMEN

The proposed “smart safety device for women” provides assistance to women who might be in an unsafe situation. This is a handheld device that consists of a Node MCU module and GPS application .whereas Node MCU is used to send alert messages to family members and relatives. GPS is used to send the location, moreover, the latitude and longitude data that is received by the GPS is delivered to the Node MCU module, meanwhile, the location of the victim person will forward to the family members and relatives. This device consists of a shock wave generator that acts as a weapon to defend herself. Further when the woman is attacked by the Offenders in a place where there are no communication signals to send the information. In this case, she can defend herself by using a shockwave generator. The main purpose of this handheld device is to protect the women themselves in any case.

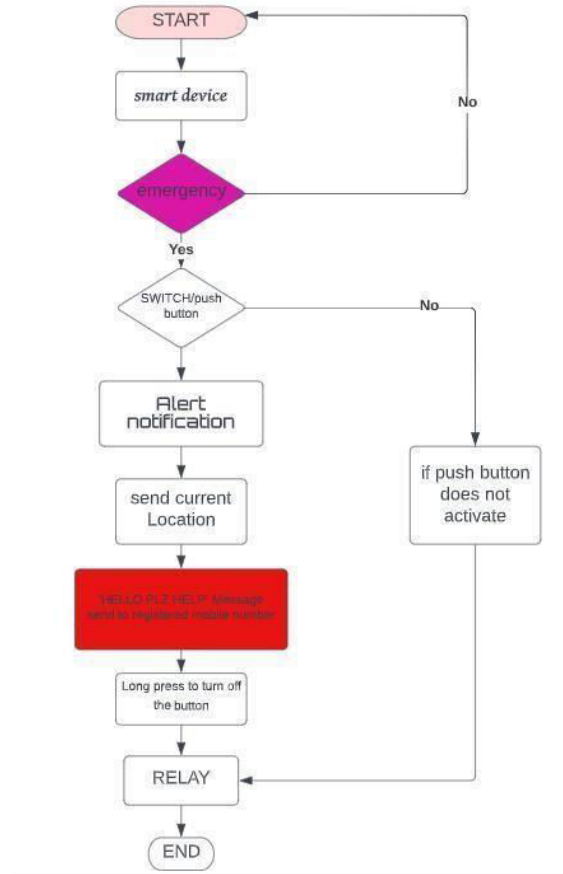
Block diagram:



Node MCU is used to connect objects and let the data transfer using the Wi-Fi protocol. An external power supply is given to Node MCU. Pushbutton is connected to Node MCU to press the button when there is an emergency or a situation. When the pushbutton is pressed the message is sent from the Node MCU through the cloud to the mobile. The current location is also sent from the GPS application. This alert notification and location are sent to the registered numbers which are stored in the cloud. To defend themselves relay is placed. The external power supply with 230v is given to the relay. Relay is used to defend themselves by generating shockwaves to attack the offender.



Flowchart:



The flowchart above gives the brief information regarding the project:

- Start the process.
- If there is an emergency, press the pushbutton.
- Then the alert notification like “HELLO PLZ HELP” and current location is sent to the registered numbers and nearby police stations.
- Till someone reaches her, she needs to defend herself so this project also has a relay.
- Relay which is used to generate shockwaves.
- Long press to turn off the device.
- Stop the process



IV.RESULTS

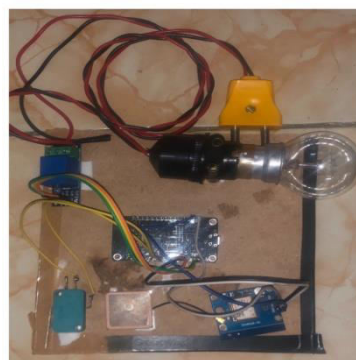
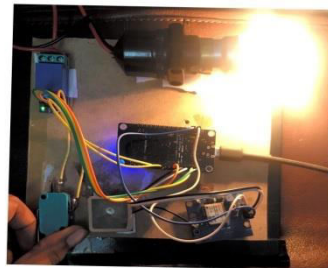
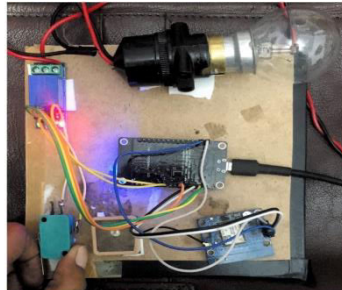


Fig:7.1 Circuit with the components connected

Fig:7.2 circuit with power supply

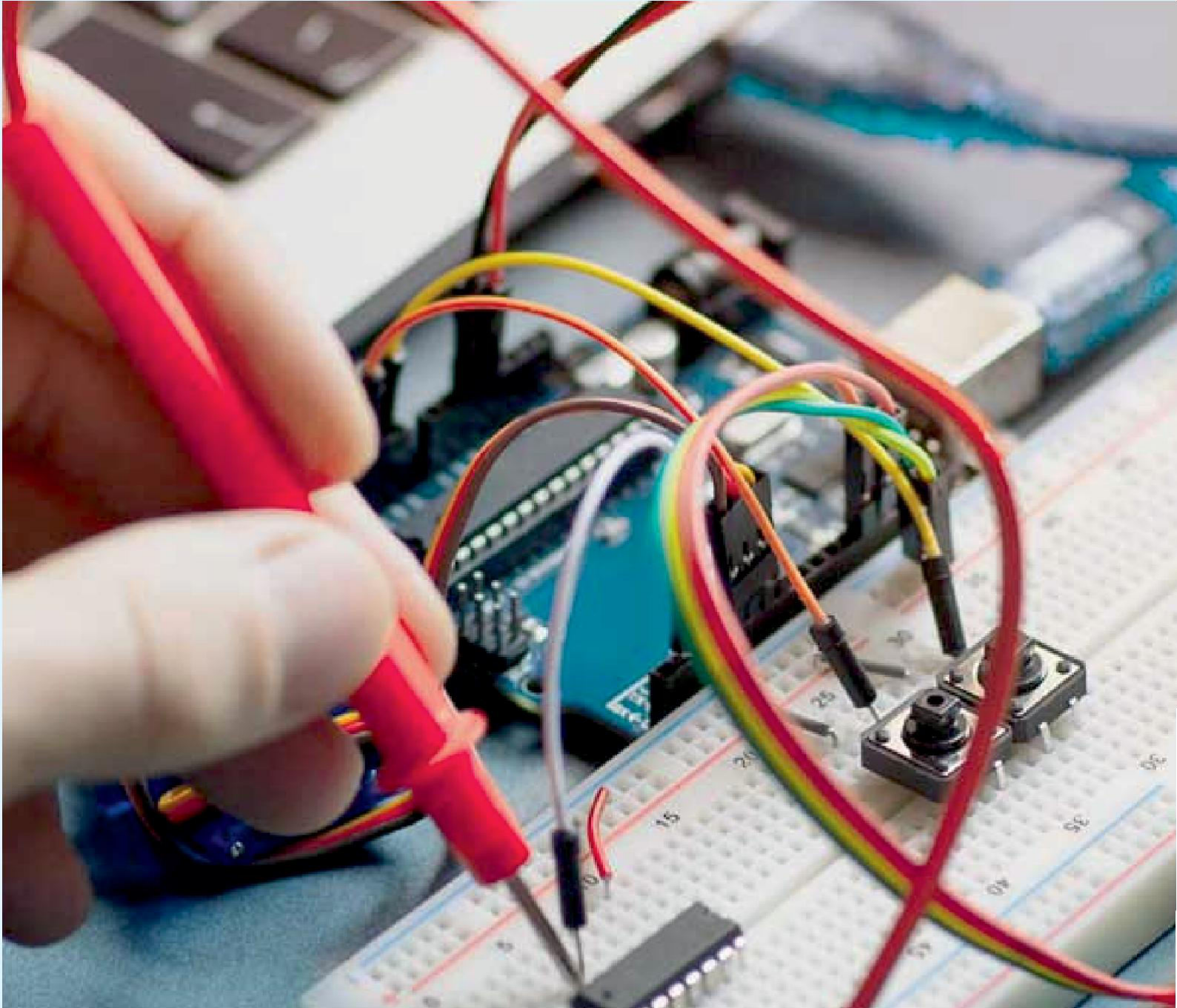
V.CONCLUSION

The main objective of this women safety device is proposed and designed in this paper. The small and light weight device can be easily carried by women and young ones while travelling on road, work place and where they want. By using this alert device with self-defense mechanism of women will certainly reduce the harassment rate. The proposed mechanism locates the location of victim in terms of latitudes and longitudes and can be tracked by GPS effectively. These crimes should be brought to an end with the help of our proposed system. As a future work using shockwave generator the victim can defend herself from attackers.



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