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PROJECT PROPOSAL PRESENTATION

SAFESTRIDES: IoT-POWERED SAFETY SYSTEM FOR WOMEN

PRESENTED FOR
Perspective Panorama

PRESENTED BY
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INTRODUCTION

GuardHer and GuardianStep form a comprehensive safety system designed specifically for women. GuardHer, a companion app, allows users to create a secure profile with essential information protected by a passkey. This data can sync with GuardianStep footwear, which features force sensors connected to a Microcontroller unit. Upon surpassing a preset threshold, these sensors trigger location transmission to the control panel and parental mobile numbers. Legitimate alerts are signaled through brief vibrations, with false alarms managed through app deactivation. Failure to deactivate prompts automatic transmission of user profiles to the control panel and nearby police stations. This integration of technology promotes gender equality, women's empowerment, and smart mobility. GuardHer and GuardianStep empower women by providing a secure platform and embedding safety features into everyday footwear, ensuring they can move confidently and safely in society.

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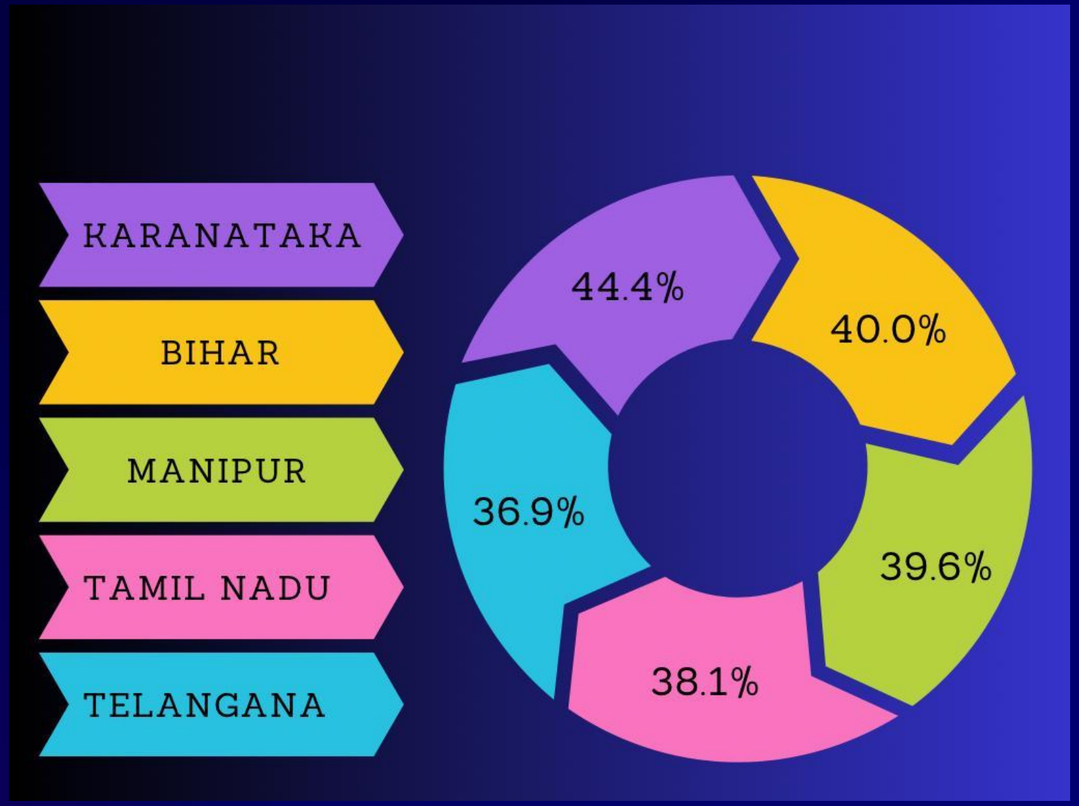
SDG GOAL NO :5

Gender Equality & Women Empowerment

STASTICS:

The top 5 states in India which prompts to most of the violence against women.



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Problem Statement

The increase in violence and harassment of women in public sectors consequently increased the demands in solution for their security and safety. The problem is to develop a IOT based model for guarding woman from potential threats to make their navigation safer.

Proposed Solution

The solution for this problem is to develop a smart footwear with integrated sensor, GPS and modules to activate real time tracking and transfer of personal profile which contains Name, Photo, Mobile number, Working place of respective users to Control panel in case of force sensor is to ensure the women is safe and secure.

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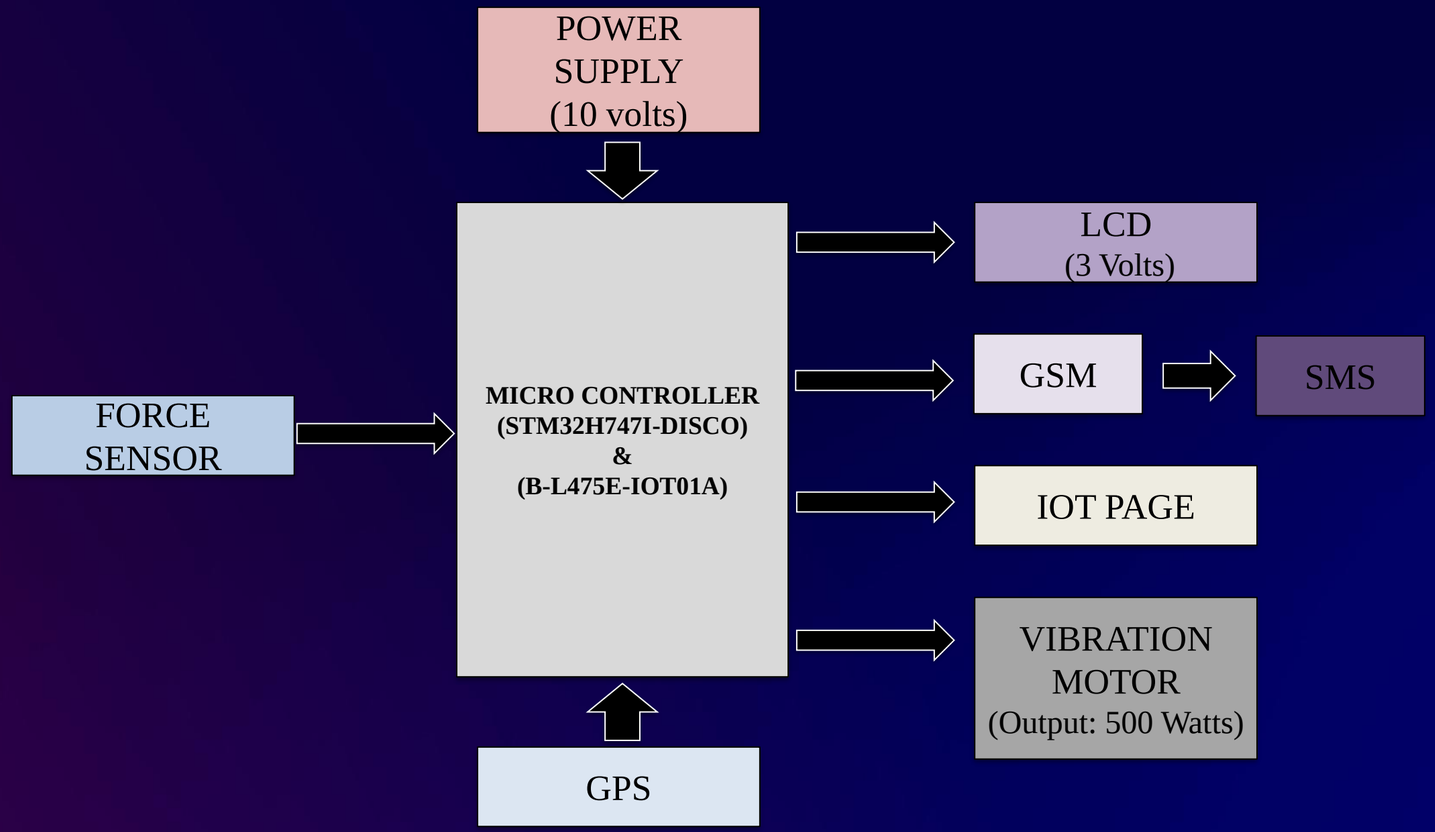
BLOCK DIAGRAM



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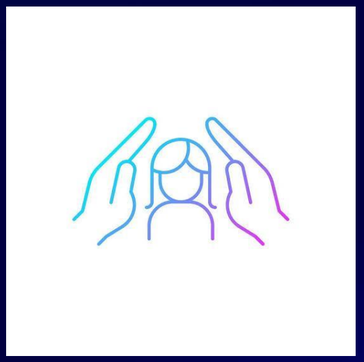
ABOUT THE IDEA



The product splits into two "GUARDHER" and "GUARDIANSTEP".

At first GUARDHER is an application where user will initially register with their personal details which is particularly only for women. After registration, they will be creating a wallet inside the application with a passkey to secure the details they provided. The Wallet contains a safe profile of their,

a. Photo b. Name
b. c. Mobile number
c. d. Working place

All the details were mandatory to maintain a profile in our app. Once the profile is created, they can link their wallet to the control panel or control room. This application "GUARDHER" profile will be linked with their respective "GUARDIANSTEP" footwear.

Secondly "GUARDIANSTEP" is a footwear integrated with a force sensor which gets activated once the user gives the pressure beyond the threshold limit with their foot. To distinguish the activation, the pressure threshold will be fixed slightly beyond the actual walking or running pressure by the foot. After the activation the current location of the user will be sent to the control panel as well as to the registered mobile number(parents/guardians). Then also the vibration motor which is fixed in their footwear gets activated to confirm the false alerts. If it is a false alert (randomly the sensor gets activated) the user can "Of' the vibration motor by entering into our application and to provide their particular Passkey they had given. If else the motor is destroyed or not turned off within a specific time limit, the profile in their wallet automatically sent to the control panel and the nearby police stations will get the needed information about the user with their photo. This footwear helps in faster recovery.

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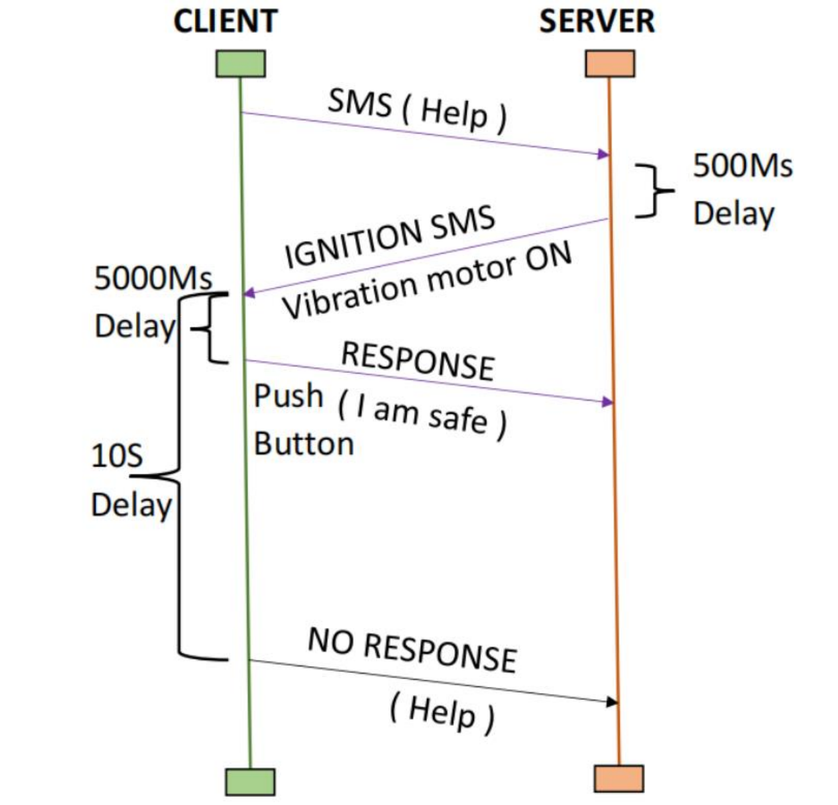
CLIENT SERVER FLOW



Here the server is control room, client is the women.

After the women give the force by using the Sensor, then the GSM get Alert and send SMS like (“I am in danger, I need help” /n My live location is <https. live location link.com> /n About me <www.iot web page link.com>”).

Then the SMS will send to the parent and police control room, then the control room office will get aware and send a response ignition message as (“Vibration Motor ON”).

Then the motor get comment from GSM and then vibration act for 5 sec. If the women not in danger but the force get high and then SMS sent, then she get comment and get vibration means she response through the push button the reply message will send as “sorry sir. I am not in danger. Thank you for your care”. Else in danger there is no response from her, then the control officer will inform to the nearby police station they take care of her.

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COMPARISION

EXISTING	PROPOSED
It employs a manual activation method using a button to initiate user tracking.	The proposed solution utilizes a force sensor integrated into the footwear.
The user profile is not automatically transferred in dangerous situations.	The admin(Control Room) can access the user's profile which includes their necessary personal details specifically their photo for identification, which is automatically transmitted when the sensor is activated.

The key distinction lies in the activation mechanism and the handling of user profiles during emergencies. The proposed solution streamlines the process by automating activation through the force sensor, eliminating the need for manual intervention. Additionally, it enhances safety measures by ensuring that essential user information, including a photo, is promptly relayed to the admin in case of activation, facilitating quick response and assistance. This approach enhances the effectiveness and efficiency of the safety system, providing users with greater peace of mind and security.

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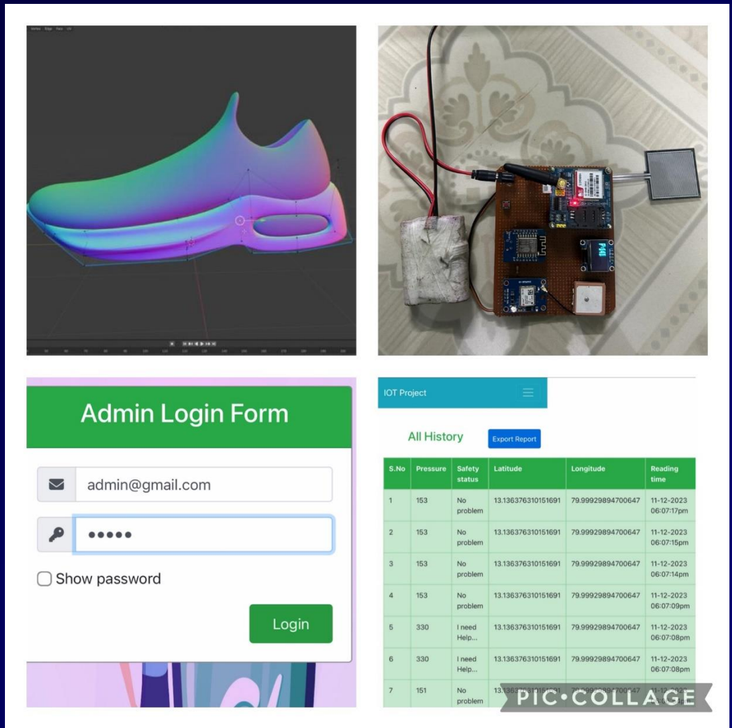
COMPONENTS USED

S.NO	COMPONENTS	SPECIFICATIONS
1	FORCE SENSOR	ROBODO SEN38
2	MICRO CONTROLLER	STM32H747I-DISCO (&) B-L475E-IOT01A
3	GPS	NEO-6M (Serial TTL Output)
4	GSM	SIM900A GPRS 4G
5	BATTERY	12V, 1.3Ah
6	LCD DISPLAY	4156, 0.96 OLED BLUE SPI, 7PIN

PRODUCT

S.NO	COMPONENTS	SPECIFICATIONS	COST
1	FORCE SENSOR	QLA414 NANO SENSOR	$21.00
2	MICRO CONTROLLER	BEETLE	$20.05
3	GNSS MODULE	MIA-M10	$29.00
4	ON-CHIP BATTERY	12V, 1.3Ah	$19.50

PROTOTYPE IMAGE



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UNIQUE SELLING PROPORTION

- Real-time Location Accuracy: Highlight precise GPS and location tracking that provides users and their loved ones with , information in emergency.
- AI-Driven Threat Detection: Encourage the utilization of artificial intelligence for smart threat detection, ensuring the system's capability to differentiate between real threats and false alarms.
- Mobile App: A mobile app that simplifies navigation and usage, making it even to those with limited tech expertise.
- Discrete Wearable Design: Emphasize the discreet and fashionable design of the wearable device, making it easy for women to into their daily attire.
- Privacy and Data Security : Provide users with robust privacy controls and advanced data security measures to safeguard their sensitive information, our system as highly trustworthy.

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2 CUSTOMERS

- **WOMEN:** Primary target
- **WORKING PROFESSIONALS:** Women who work late hours.
- **COLLEGE STUDENTS:** Students particularly those on campus or in urban settings.
- **TRAVELLERS:** Women who frequently travel, whether for business or leisure.

3 PROBLEMS

- **HARRASMENT:** Women frequently experience verbal harassment, catcalling, and even physical harassment in public spaces, which can make them feel unsafe and uncomfortable.
- **SAFETY CONCERNS:** Women may feel unsafe walking alone at night due to the fear of crime, which can restrict their mobility and independence.

1




COMMUNICATION

We have conversations with our college students and conducted a small survey to know about their daily life difficulties and the sectors were they need our help.

4 PRODUCT

- **GPS TRACKING:** Incorporate GPS modules in the footwear to track the user's location in real-time.
- **SAFER PROFILE:** User photo with their name and address will be maintained and sent once the Force sensor is triggered.
- **SOS ALERTS:** Enable a built-in SOS button in the footwear.
- **CONNECTIVITY APPS:** Integrate the footwear with a mobile application for real-time monitoring and alerts.

APPROXIMATE QUANTUM OF IMPROVEMENT 5

- **TIME SAVED:** 1hrs-2hrs
- **COST REDUCTION:** Rs.1000
- **COGNITIVE EFFORT REDUCED:** 20-40%
- **NEW RESOURCES:** May be added in future.

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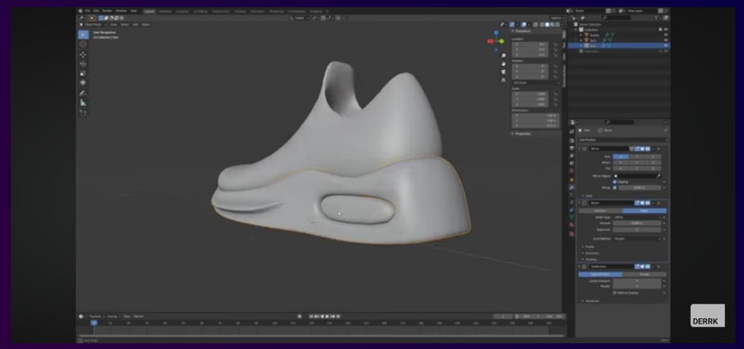
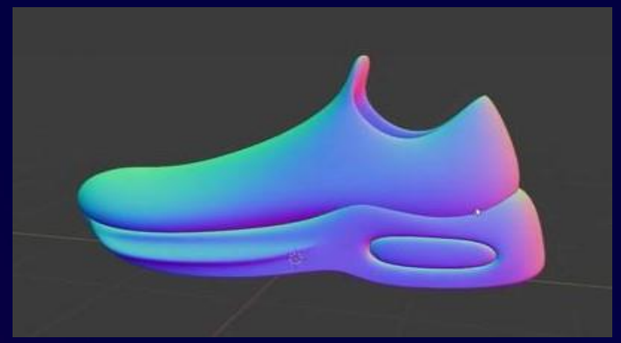
3-D DESIGN USING BLENDER SOFTWARE





GITHUB LINK（code）

1. https://github.com/Nitheswaran07/HARDWARE_CODE.git

2. https://drive.google.com/file/d/1fLUnlWqE968yK_wSCe6n4-L4HFAZRae6/view?usp=drivesdk

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CONCLUSION

In conclusion, the implementation of a Women Safety System using IoT represents a significant stride towards creating a safer and more secure environment for women. By leveraging the power of interconnected devices and real-time data monitoring, this system addresses the pressing issues of personal safety. The integration of wearable devices, GPS tracking, and emergency response mechanisms ensures a rapid and efficient response to potential threats. As technology continues to advance, the Women Safety System demonstrates the potential for innovation in safeguarding individuals.

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