ELECTRONICS AND IOT PROBLEM STATEMENT

Multi-Functional Safety Device for Emergency Situations in Public Areas:

Build a personal safety device with a panic button, feedback response, location sharing, environmental data capture, and IoT integration for efficient emergency assistance. You have to make the device physically as much as compact and easy to use.

BASE PROBLEM:

Develop a compact, wearable **safety device** designed to assist individuals in panic or critical situations. The device should include:

- **Panic Button**: To sends an immediate distress signal to predefined emergency authorities.
- **Location Sharing**: Shares the user's real-time and precise location to aid rescue efforts.

BONUS PROBLEM:

Enhance the device with a **Feedback Response Button** to confirm whether the individual is safe or needs further assistance.

- Detect sudden movements like falls or collisions. If the device detects an impact, it triggers an alert unless the user presses a button within a specified time (e.g., 10-15 seconds), it sends real time location to the emergency authorities.
- Additionally, the system is capable of sending real-time information about the environmental situation of the location, providing valuable data

PLACE FOR INNOVATIONS:

Participants are allowed to use innovative ideas over the base problem.

Participants are encouraged to build upon the base problem and integrate innovative ideas to enhance the detection and response to emergencies.

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CONSTRAINTS:

The device should be designed to be as compact and user-friendly as possible.

DC power supply and any **microcontroller** or **microprocessor board** can be used. Any Sensor can be used.

RULES:

You have to make the device physically.

Participants will be scored according to:

Base Problem (0-100 points)

Bonus Problem (0-50 points)

Innovations (0-50 points)

Submit a report which should contain the followings:

You have to make the device physically.

1. Full description such as, model design, hardware and software working, electronics used, circuit schematics, power management, etc.
2. Optimizations taken to reach proper accuracy, power consumption.
3. Model limitations and places for further improvement.

Participants also have to submit working videos of their model made.

ZYRO'2025 Website Link: https://www.zyro-kgec.tech/