

NodStop Project

PRODUCT DESCRIPTION

NodStop Project is a smart anti-sleep helmet designed to improve motorcycle rider safety. The system integrates Advanced Driver Assistance System (ADAS) features such as lane departure warning using a camera and drowsiness detection using an IMU sensor.

The helmet provides real-time alerts through a buzzer when unsafe riding conditions are detected. It is also connected to a mobile application that enables SOS emergency alerts and live location sharing to ensure faster emergency response. This solution helps reduce accidents caused by rider fatigue, loss of focus, and delayed assistance.

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TEAM MEMBERS

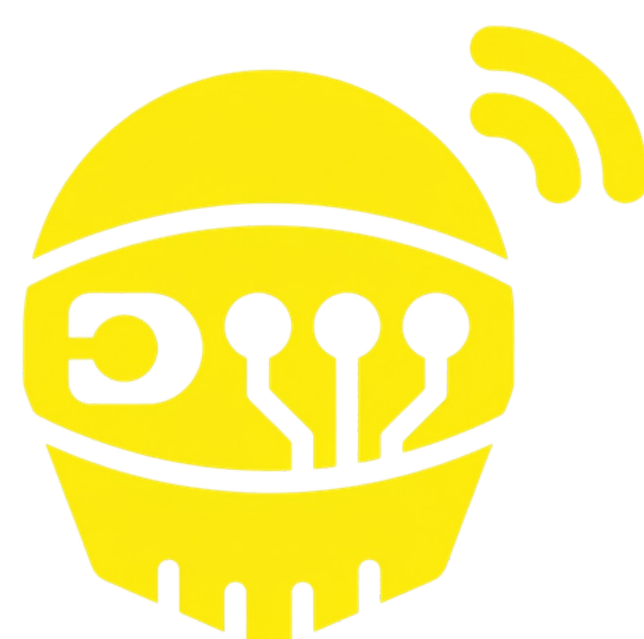
PROBLEM AND CAUSES

- To design a smart helmet with lane departure warning using camera.
- To develop a drowsiness detection system using IMU sensors.
- To create a mobile application for SOS alerts and live location sharing.
- To improve rider awareness and reduce accident risks.

OBJECTIVES

- Riders may unintentionally drift out of their lane due to fatigue or lack of focus.
- Existing helmets do not have real-time drowsiness detection systems.
- Delayed emergency response due to lack of automatic alert systems.
- Long-distance riding increases risk of accidents caused by drowsiness.

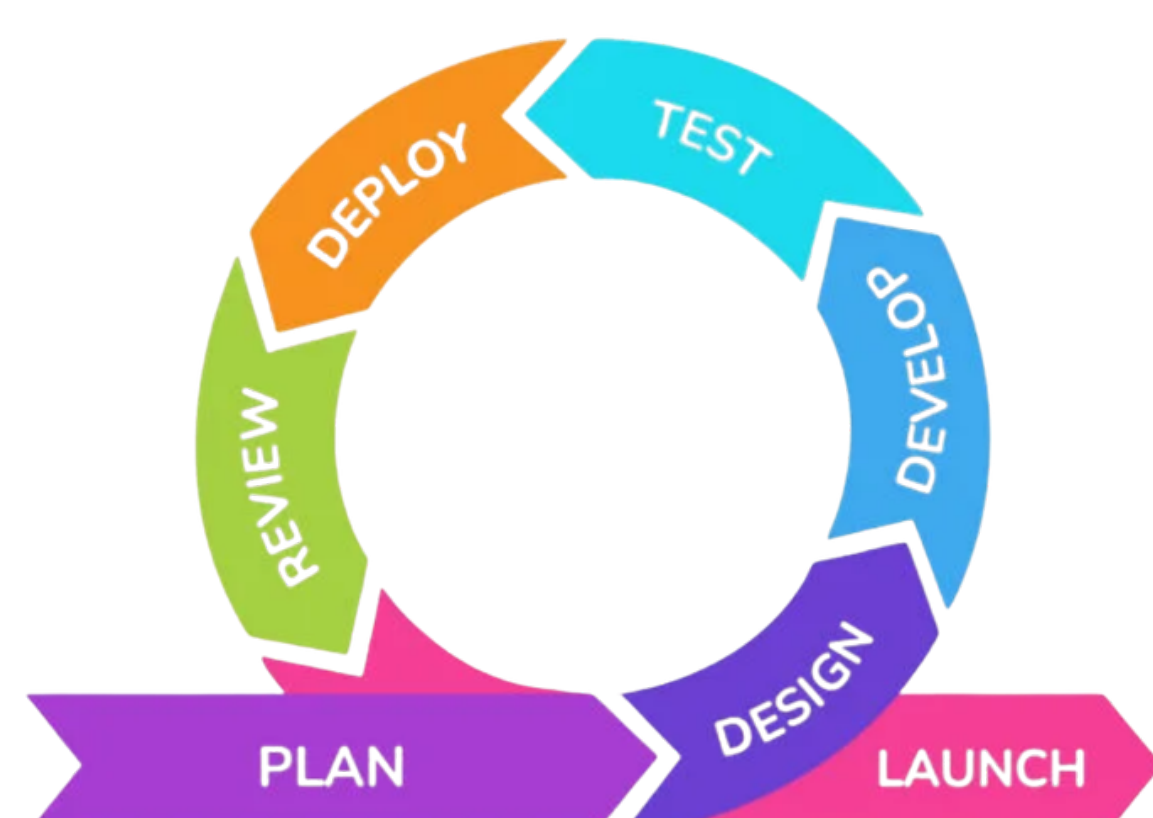
SIGNIFICANT & BENEFITS



- Improves rider safety with early warning alerts.
- Detects drowsiness using IMU sensor technology.
- Provides real-time buzzer alert for immediate response.
- Enables SOS emergency alerts with live location sharing.
- Suitable for delivery riders, commuters, and long-distance riders.

METHODOLOGY & MATERIAL

AGILE DEVELOPMENT



Husky Camera



GPS Sensor



IMU Sensor

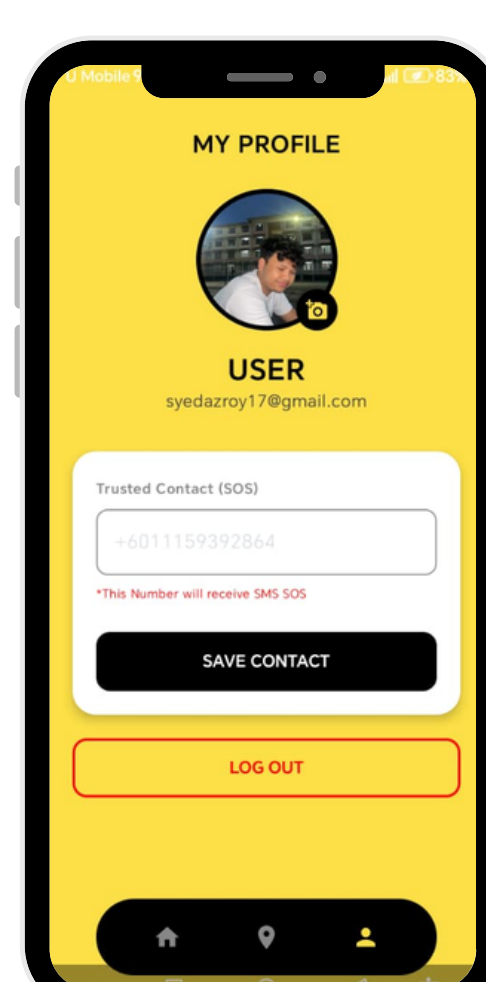
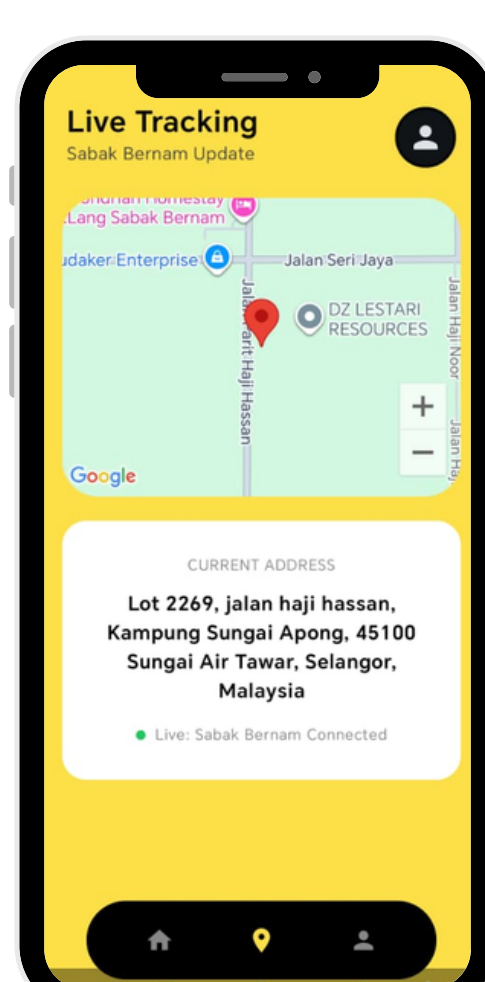
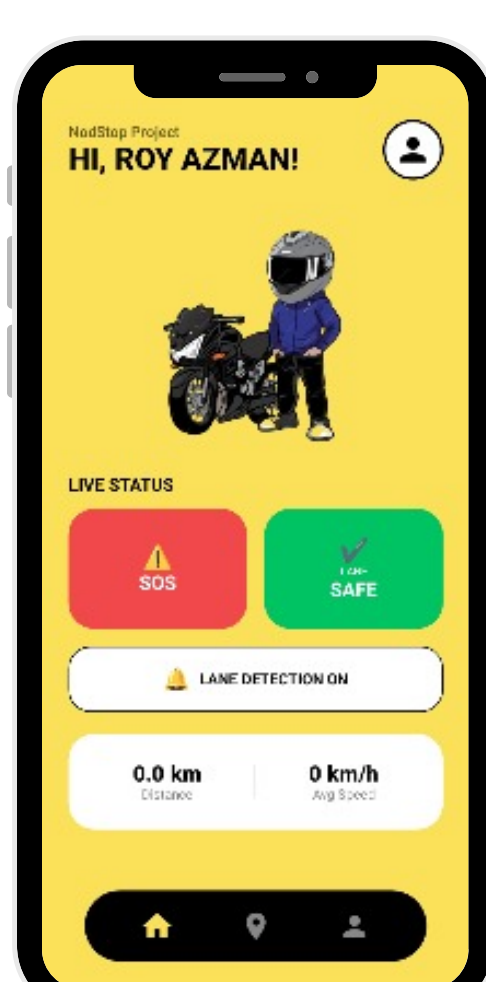
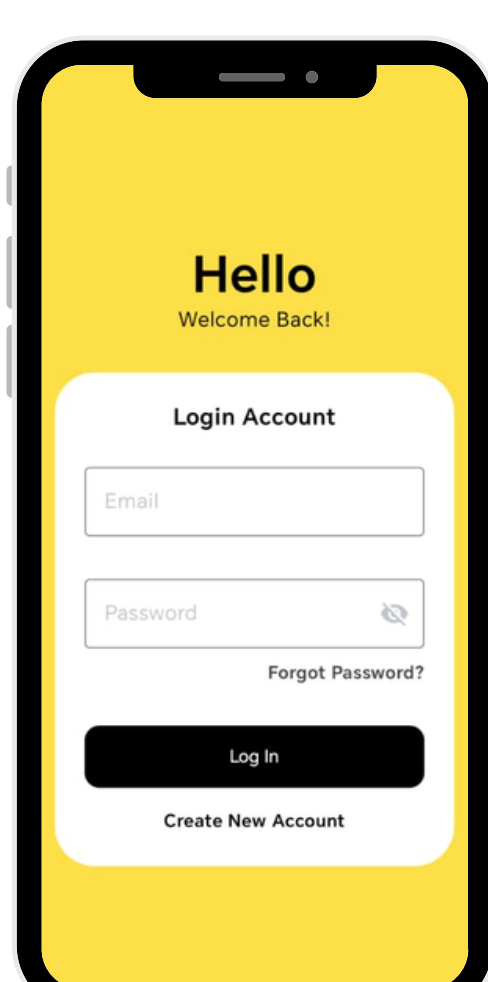


ESP32

The NodStop project uses an Agile Development methodology, which means the system is developed step by step through planning, designing, testing, and improving in cycles. This approach helps the team fix problems quickly and improve the system over time.

For the materials, several main components are used. The Husky Camera is used for lane detection, while the IMU sensor detects rider movement to identify drowsiness. The ESP32 microcontroller acts as the main controller that processes data and connects all components together.

APP AND DEVICE



COMMERCIALIZATION POTENTIAL & SURVEY

The NodStop Project has strong commercialization potential as a smart safety device for motorcycle riders. It targets delivery riders, daily commuters, and long-distance users.

Survey results indicate that most riders are concerned about safety, drowsiness, and emergency response. The integration of smart alert systems and mobile connectivity increases user interest and market acceptance.

This product can be further developed for mass production and integration with existing helmet manufacturers.