[SAFE GUARD-IOT POWERED SMART HELMET]

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Abstract

This project presents a cost-effective Smart Helmet that enhances motorcycle rider safety using IoT. It includes helmet detection and fall detection features, ensuring proper use and alerting in case of accidents. Designed as a smart add-on for existing helmets, it aims to improve road safety through real-time monitoring.
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Background

Motorcycle accidents often lead to fatalities due to helmet neglect and delayed emergency response. While existing smart helmets offer safety features, they are typically expensive and inaccessible to many. This project aims to create a cost-effective smart helmet with real-time monitoring, including helmet detection and fall alerts, making advanced rider safety available to everyone.re

Methods

Sensor Integration: Detect helmet use and falls with sensors.
Wireless Data Transmission: Use Bluetooth or GSM for real-time data transfer.
Alerts: Send notifications to emergency contacts when a fall is detected.

Results

The Smart Helmet system effectively detects whether the helmet is worn, and not worn. Based on the detection, the system controls the bike's ignition (simulated by a Buzzer). The green, and red LED indicators provide clear visual feedback, and the relay successfully controls the buzzer, ensuring it buzzes only when the helmet is worn correctly. This system has proven to enhance safety and enforce helmet use in real-world conditions.

Conclusion

The Smart Helmet ensures rider safety by allowing bike ignition only when the helmet is properly worn. With sensor technology, LED indicators, and relay control, it offers a reliable and easy-to-use solution for promoting helmet usage and preventing accidents.

Future Perspectives

Future Smart Helmets may include a voice assistant for hands-free use, a data-sharing platform for reporting road conditions, and eco-friendly materials for sustainability, making them safer and more responsible choices for riders.