



MotoVision HUD



Proposal

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Introduction.

“Motorcyclists **28X**
face
the chance of
dying in an accident compared
with those in passenger
cars.”





Similar Products

Health & Safety

Visual Safety and Display Clarity

- ❑ Clear, unobtrusive HUD (Heads-Up Display) integrated into the helmet.
- ❑ Automatic brightness adjustment for day and night visibility.
- ❑ Display positioned to ensure rider keeps eyes on the road.

Operational Safety and Human Factors

- ❑ Intuitive and simple interface to minimize rider distraction.
- ❑ Use of non-intrusive visual/audio signals for system alerts.
- ❑ Calibrated to reduce false positives and unnecessary notifications.

Regulatory Compliance

- ❑ Helmet and components comply with safety laws (FCC, DOT, ECE, Snell ratings).
- ❑ Modifications ensure compliance with local traffic safety regulations.

Objective.

MotoVision HUD



Vehicle Detection

- Detects vehicles within a 3-meter range.
- Response time: <200 ms.

LED Alerts

- Hazard-triggered LED alerts within 100 ms.

HUD Display

- Displays real-time speed, weather, & datetime.

Wireless Communication

- Bluetooth with a 10-meter range and <50 ms latency.

Battery Life

- Continuous operation for 8 hours.

Mobile Integration

- Syncs in-app for remote configuration and data logging.
- Updates every 5 seconds.



Includes:
- Battery
- Receiver

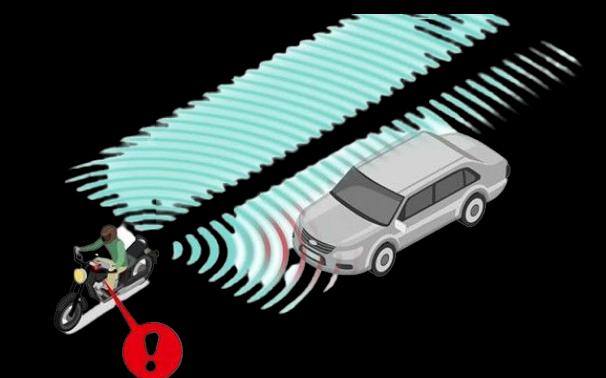
Raspberry Pi, Transmitter, ESP32



Deliverables

Blind Spot Detection

Detection of vehicles within a 3-meter range



Heads-Up Display

Providing real-time speed, weather and datetime updates



Integrated Mobile App

Integration with mobile app with analytics and customization



Project Specifications.

Blind Spot Detection

- ❑ An ultrasonic sensor based object detection system
- ❑ A Raspberry Pi radio transmitter system
- ❑ An LED radio receiver notification system

Heads-up Display (HUD)

- ❑ A visor-integrated transparent heads-up display (HUD) system
- ❑ A real-time information display software
- ❑ A wireless data communication module for HUD input

Mobile App

- ❑ A user interface (UI) design module for helmet and HUD system control
- ❑ A Bluetooth communication module for helmet-to-app connectivity
- ❑ A backend API module for real-time sensor data

Technical Modules

Resources

Estimated Cost:

\$285



Schedule.

Timeline

December

Blind Spot Detection (BSD)
development and testing complete

February

Heads-Up Display (HUD)
development and integration complete

March

Mobile App
development and testing complete

April

Capstone Expo

Monitoring & Control

Budget Tracking



- Track expenditures regularly through Excel
- Calculate net spending and ensure compliance with original budget

Task Breakdown Monitoring



- Breaking down each task in the time-line into manageable tasks
- Allotted to each individual team-member
- Tracked and updated live progress to directly influence the changing Gantt Chart system

“ Vision-driven
innovation for
smarter, safer rides ”