

Smart Helmet

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Abstract: *The Smart Helmet project aims to significantly enhance motorcycle rider safety through the integration of advanced technologies designed to prevent accidents and provide immediate assistance in case of emergencies. The project addresses the alarming rates of road accidents involving two wheeler motorcycles, which are one of the leading causes of death and injury worldwide. The system employs a combination of sensors, including alcohol detection sensors (MQ-3), helmet detection sensors (IR and PIR), and accident detection systems (accelerometers) to always ensure the rider's safety. The smart helmet involves acting as a key to the motorcycle, ensuring that the vehicle can only start when the rider is both wearing a helmet and not under the influence of alcohol. The MQ-3 alcohol sensor detects the presence of alcohol in the rider's breath, and if alcohol is detected above a certain threshold, the engine is automatically locked to prevent the rider from starting the motorcycle while intoxicated. The IR and PIR sensors are responsible for verifying whether the rider is wearing the helmet, as the system will not permit the bike to start if the helmet is not detected. Additionally, the system features an obstacle detection mechanism that alerts the rider when an obstacle is too close.*

Keywords: Alcohol Detection, Helmet Detection, Accelerometer, GSM & GPS Module, Emergency Alert System