SAFE OVERTAKING SYSTEM(S.O.S.)

PROBLEM STATEMENT

Large & heavy vehicles such as trucks and buses often have a higher profile and can obstruct the view of drivers in smaller vehicles. When a driver attempts to overtake a large vehicle, they must rely on their own judgement and the information available to them, such as road signs and signals, to take the maneuver safely. However, if their view is obstructed, they may not be able to see potential hazards, and the risk of serious accident increases.

We are proposing a solution to provide a frontal view to the driver of a vehicle, thereby reducing the risk of accidents caused by obstructed view.

PROJECT OVERVIEW

Our Project is a safe overtaking system, designed to address the dangers of overtaking on highways and busy roads. It uses a networked camera solution to provide a clear and unobstructed view of the road ahead, enabling drivers to overtake large & heavy vehicles safely having features such as object detection, speed monitoring, and distance measurements to help drivers avoid potential hazards on the road. It designed to be easily installed and operated without requiring any major modifications to the vehicles.

SOLUTION OFFERED

The project aims to address the issue of severe road accidents caused by obstructed views during overtaking on highways. Specifically, it proposes to provide a frontal view to the driver of the overtaking vehicle by using a built-in camera from the larger vehicle and transmitting the video footage to the rear vehicle via Raspberry Pi with the help of Wi-Fi hotspot communication, python OpenCV and Socket Library. This solution can help drivers make informed decisions about whether it's safe to overtake, reducing the risk of accidents caused by obstructed views. The project aims to be cost- effective, practical, and feasible to implement on highways and other roadways. By improving road safety, the project has economic costs associated with road accidents.

WHO ARE END USERS?

The Project targets three user groups: Automobile companies, transport-related business, and car drivers. It aims to improve the safety record of vehicles, reduce accidents and provide individual car drivers with technology to make informed decisions and improve their safety. The project has the potential to benefit a wide range of stakeholders and reduce the economic costs associated with road accidents.

TECHNOLOGY USED TO SOLVE PROBLEM

Our Solution utilizes a Raspberry Pi, AM radio transmitter and receiver, and Wi-Fi hotspot to transmit video data between the front and rear vehicle. We used OpenCV and Socket libraries of python programming language to process and display the video data and to facilitate the connection between the two Raspberry Pi Module. These technologies enable us to provide practical and effective solution to the problem of obstructed views during overtaking on highways.