TI IICDC 2018 Quarterfinals Business Proposal - Transcript

Introduction:

Good afternoon everyone, and welcome to our presentation on the TI IICDC 2018 Quarterfinals Technical Proposal by team 390003. In this presentation, we will be showing a live demonstrations of the Automated Guidance System for Motor Vehicles.

Annually, 150,000 Indians lose their lives on the road, causing thousands of crores of losses to the economy and society. Our product aims to mitigate this issue by constantly monitoring the surroundings. Internally, we assess the state of attentiveness of the driver (through the camera module), and externally we provide a real time measurement of the minimum braking distance. This ensures the driver has enough reaction time in the event of sudden braking, helping prevent an accident.

We present our proposal in 2 stages: We start off with the internal monitoring , where we use the camera module to check the attentiveness of the driver. The camera frames act as raw input to the multi-stage regression model. Using multi-layered Haar Cascade, we first locate the face of the driver. This region of image is fed to the second layer of our model that quantifies the attentiveness of the driver by checking whether his/her eyes are open or closed. If the driver is inattentive for too long a period, an alarm sounds to bring his/her attention back to the road.

Live demonstrations

The given figure shows the proposed layout of our product. The Beagle Bone Black acts as our CPU that performs all calculations and gives the output. The ultrasonic sensors on the side help identify incoming traffic in the blind spots and warn the driver regarding the same. The LIDAR measures the distance with respect to the car in front and provides data for braking distance calculation to the Beagle Bone. The internal camera module assesses the state of driver attentiveness through eye tracking. The LCD screen provides subtle warning messages and other information while the speakers are activated only in the case of imminent danger (e.g. driver sleeping at the wheel, sudden braking by vehicle in front).