## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

## Guest Lecture on Sensor Fusion for Automated Driving
On (26.02.2022)

REPORT

Dr. Bhupala Hari Bhakta Sri Hari, Principal Engineer, Continental Automotive India Pvt.Ltd., delivered a lecture on "**Sensor Fusion for Automated Driving**".

He delivered lecture about the sensor fusion for automated driving. The vehicles to be able to drive autonomously, they must perceive their surroundings with the help of sensors: An overview of camera, radar, ultrasonic and LiDAR sensors. As part of autonomous driving systems that can make critical, autonomous decisions, sensor fusion systems must be designed to meet the highest safety and security standards. That's where Infineon comes into play with a wide portfolio of products to design dependable sensor fusion systems.
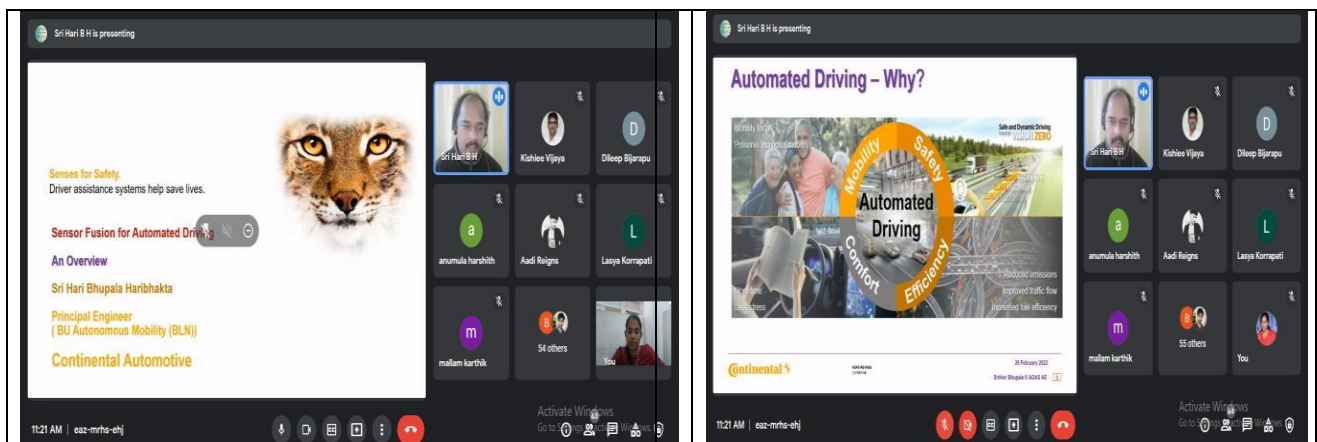
Participants Listening to the Resource Person Dr. Bhupala Hari Bhakta Sri Hari
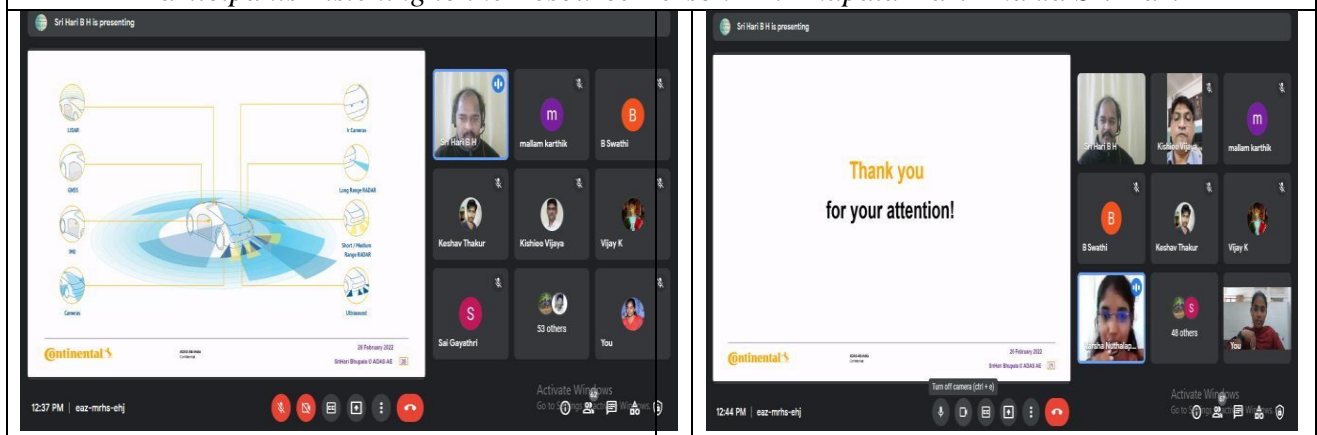
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The automotive industry plays a crucial role in building the global economy. Autonomous vehicles require sensors such as cameras, radar, and LiDAR units to

view and evaluate their surroundings. They also require computing power and artificial intelligence to analyze multidimensional obstacles and often need multisource data inputs to provide the vehicle with a holistic and unified view of the surroundings in real-time within fractions of a second. To meet all these requirements, sensor fusion is a requisite in autonomous vehicles.

The driver can take over the task of driving in case of system failure or if the automated driving feature reaches its operational limits. The automated vehicle architecture must be robust to handle safety-critical situations. And for this, fail-operation behavior is vital in the sense, predict, and act stages of the autonomous chain. To achieve this level of fail-safe operation, components like safety controllers, sensors, radar, LiDAR, cameras, and computing platforms are being integrated into future cars.

Sensor fusion is the process of merging data from multiple sensors such that to reduce the amount of uncertainty that may be involved in a robot navigation motion or task performing. These sensors can be a camera, radar, LiDAR, Time-of-Flight (ToF), microphones, and inertial measurement units (IMU), among others.The three fundamental ways of combining sensor data are the following: Redundant sensors, Complementary sensors, and coordinated sensors.The market has been segmented on the basis of Type of Vehicle and Geography. Passenger, Light Commercial, and Heavy Commercial vehicles have been included as part of the study. In other Autonomous Vehicles segments, drones and autonomous robots are considered while evaluating the scope of the segment.

He also discussed about internships for students in the field of sensor fusion technology.

Targeted group: III B. Tech, ECE Students, SVEC.