



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35

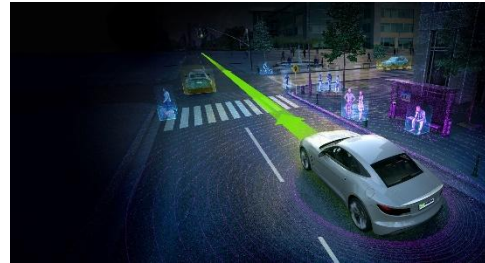
Accredited by NBA-AICTE and Accredited by NAAC – UGC with A+ Grade

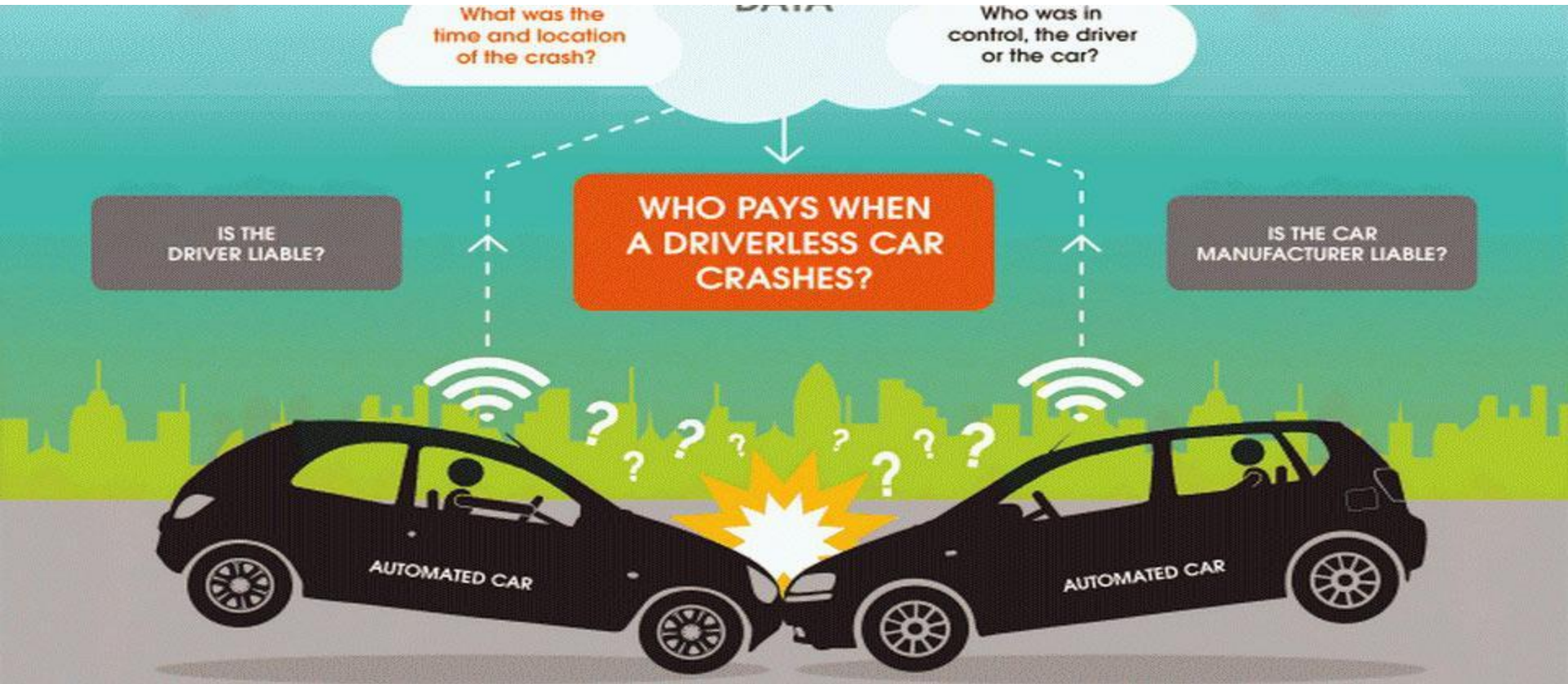
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai



UNIT V: AI APPLICATIONS

AI TECHNIQUES IN SELF DRIVING CARS







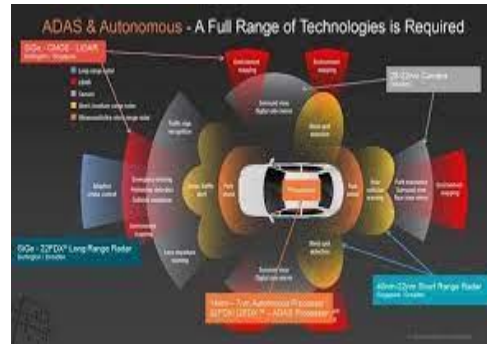
TOPIC OUTLINE



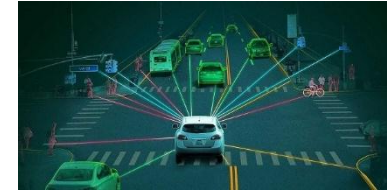
Techniques?
An comparison?
Levels of automation
Pros and cons



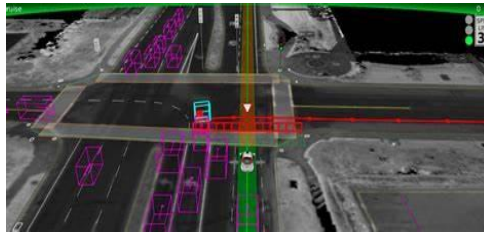
TECHNIQUES



Object identification



Vehicle tracking system



Uses deep learning algorithm

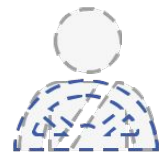
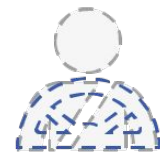




LEVELS OF AUTOMATION

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) AUTOMATION LEVELS

Full Automation



0

No Automation

Zero autonomy; the driver performs all driving tasks.

1

Driver Assistance

Vehicle is controlled by the driver, but some driving assist features may be included in the vehicle design.

2

Partial Automation

Vehicle has combined automated functions, like acceleration and steering, but the driver must remain engaged with the driving task and monitor the environment at all times.

3

Conditional Automation

Driver is a necessity, but is not required to monitor the environment. The driver must be ready to take control of the vehicle at all times with notice.

4

High Automation

The vehicle is capable of performing all driving functions under certain conditions. The driver may have the option to control the vehicle.

5

Full Automation

The vehicle is capable of performing all driving functions under all conditions. The driver may have the option to control the vehicle.



COMPARIS ON



Autonomous car data vs. human data

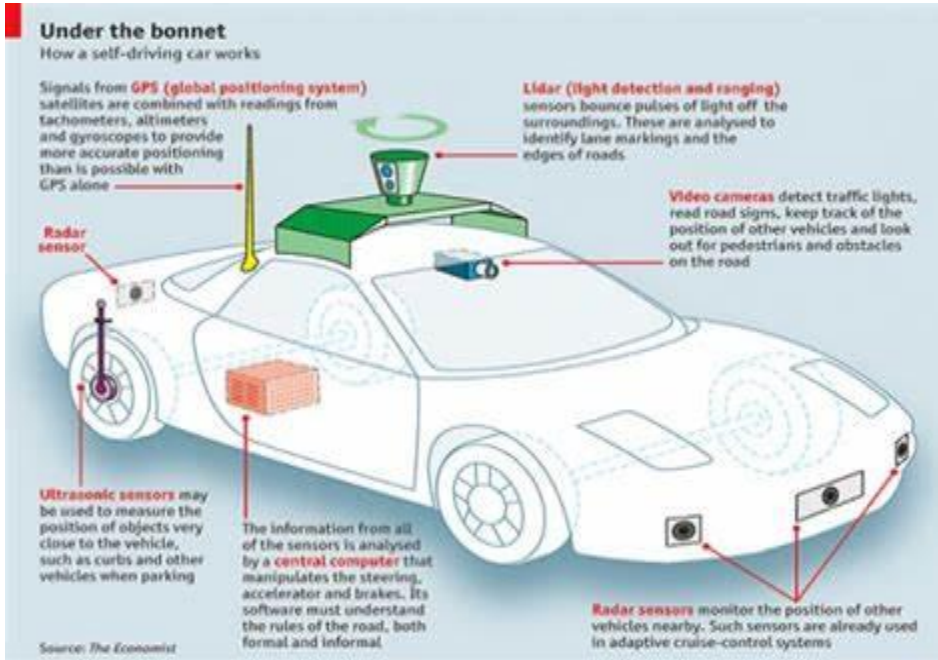
In 2020, the average autonomous car may process 4,000 gigabytes of data per day, while the average internet user will process 1.5 gigabytes. That means...



1 autonomous car = 2,666 internet users



Basic Physical Ecosystem of an Autonomous Vehicle



- Global Positioning System (GPS)
- Light Detection and Ranging (LIDAR)
- Cameras (Video)
- Ultrasonic Sensors
- Central Computer
- Radar Sensors
- Dedicated Short-Range Communications-Based Receiver



Who Leads the Autonomous Driving Patent Race?

Number of worldwide patent filings related to autonomous driving (January 2010–July 2017)



Based on a total of 5,839 patent filings related to autonomous driving identified and analysed by the Cologne Institute for Economic Research

Sources: Cologne Institute for Economic Research, WIPO



DISADVANTAGE



CAREFREE CARS

PROS	CONS
 LESS DEPENDENCE ON CARS	 MAJOR URBAN PLANNING CHANGES NECESSARY
 FEWER CARS ON THE ROAD	 PRIVACY AT STAKE
 SAFER MULTITASKING	 COST
 MORE PRODUCTIVITY POSSIBLE	 LEGAL ISSUES
 MORE ENERGY EFFICIENT	 TIME CONSUMING LEGISLATION
 INCREASED SAFETY	

High
↑
COST

Unemployment

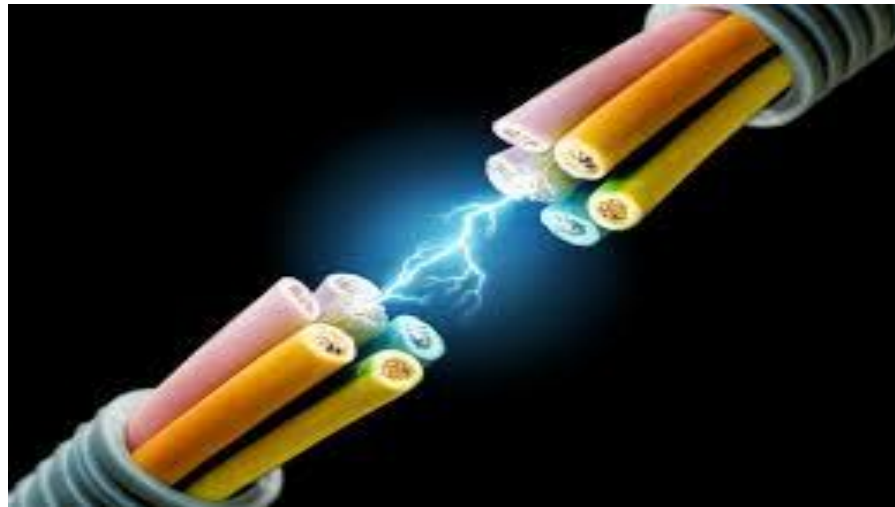


Lazy





RECAP....



...THANK YOU

