Autonomous Vehicles (AV)

- A sub class of Intelligent Transport Systems (ITS) which in their concepts are part of IoT

Perception layer includes the software and hardware of the system responsible for collecting and controlling the data. In AV, those include the devices for sensing, positioning, seeing. In the literature, examples of such devices are radars, LiDAR, GPS, cameras.
In **network layer** all the data collected by **perception layer** is transferred. The transfer can be wireless or wired, depending on the components and system’s needs. The vehicles own network is also added to this layer. The in-vehicle networks are controller area network (CAN) and local area network (LAN) [3, 29]. CAN is used to exchange data between different components in the vehicle. In AV, LAN is used to deliver data from the different sensors to the application layer where the data will be used. The cars are also connected to the Internet.
Application layer is responsible for connecting the previous layers to the end users. It consists of computers, servers, data storage or even humans if needed. In the AV context, the application layer can work with the data from sensors to calculate routes and control the car based on the calculations. The calculations are done using a computing unit (industry oriented computers in most cases). The calculation results are then converted into commands and actuation module will use those to drive the car. The layer also includes Electronic Control Units (ECU) which are developed by the car manufactures and control the electronics in the car.