Topic assignment

1	Functional Safety	Janzen	Wedea Samwuel
2	Sensor fusion	Sadhwani	Schwachmeyer
3	V2X Communication	Adam	Hoffmeister
4	Object detection and recognition	Büscher	Schünemann
5	Ultrasonic sensors	Kadambari	
6	Automated Parking	Semakula	Jabor
7	Driver State Sensing	Mithu	Koduri
8	Night Vision	Martisius	Hadizadeh
9	Adaptive Cruise Control and Emergency braking	Chikhakar	Kassabji
10	Blind Spot and Lane change assistance/manoeuvre	Sapkota	Shrestha
11	Lane Departure Warning, Lane Keeping	Beier	Weidemann
12	System architectures for automated driving	Eddoumi	Fayazi
13	Self-localization and mapping	Tene	Ahmad
14	Legal and ethical aspects	Roche	Zientek

Calendar

Mo 27.03.2023	Introduction, Orga
Mo 03.04.2023	Overview Autonomous Driving
Mo 17.04.2023	Radar sensor technology
Mo 24.04.2023	Lidar sensor technology
Mo 08.05.2023	Camera sensor technology
Mo 05.06.2023	Functional Safety
	Sensor fusion
Tue 06.06.2023	V2X Communication
	Object detection and recognition
Mo 12.06.2023	Ultrasonic Sensors & Automated Parking
	Driver State Sensing
Tue 13.06.2023	Night Vision
	Adaptive Cruise Control and Emergency braking
Mo 19.06.2023	Blind Spot and Lane change assistance/manoeuvre
	Lane Departure Warning, Lane Keeping
Tue 20.06.2023	Self-localisation and mapping (SLAM)
	System architectures for automated driving
Mo 26.06.2023	Legal and ethical aspects

Hints for your presentation and paper

When structuring your presentation and the paper, you should ask yourself:

- What is/are
  - the motivation, objective of the application
  - requirements for the application
  - requirements to the used technologies, especially to the sensors
  - applicable sensors, preferred sensor, advantages and disadvantages of the possible sensors
  - typical uses cases
  - Problematic use cases with disturbances, problems, solutions
    - E.g. weather conditions, road characteristics, curves, gradients
  - capabilities, limitations
  - buidling blocks of the sensor/feature/system
    - HMI
    - Vehicle integration
  - examples
  - outlook, future extensions

Sensor fusion

You should at least address the following aspects

- Motivation for sensor fusion
- Basics of sensor fusion
- Fusion concepts
- Fusion levels
- Temporal dependencies
- Mathematics of fusion
- Application areas
- Examples

Functional Safety

- You should at least address the following aspects
  - Definition of Functional Safety
  - Norms and Definition of Automotive Functional Safety
  - Safety Levels
  - Important terms
  - Hazard analysis and risk assessment
  - Safety measures

Legal and ethical aspects

- You should at least address the following aspects
  - Moral dilemmas
  - Recommendations of the ethics commission to the German Federal Government
  - Vienna Convention and necessary legal changes
  - Liability and responsibility
  - Future liability scenarios
  - Insurance law aspects

Evaluation criteria

- Technical quality
  - Accuracy / correctness
  - Technical language
  - Plausibility of the argumentation
  - Inclusion of relevant sources
  - Proper citation
- Presentation
  - Structure of the presentation (red thread)
  - Clarity
  - Addressee orientation
- Quantity
  - Timing / paper length
- Layout
  - Consistent layout
  - Correct spelling & grammar