

Work packages	Responsible	W23	W24	W25	W26	W27	W28	W29	W30
1. Generate a voxel grid representation of the environment	Sergio Zerpa								
Getting familiar with base code (run simulation, create a rostra of messages)									
Research methods and algorithms for implementation									
Generate a point cloud from depth image									
Generate occupancy grid from point cloud									
Merge the voxel grid representation into a global map									
Improve quality taking drifting into consideration and ntegrate into whole system									
Prepare final report, code comments and code refactoring									
2. Object detection	Cuong Van Dam								
Getting familiar with base code (run simulation, create a rostra of messages)									
Research methods and algorithms for implementation									
Extract the position/pixels of each class (traffic light, cars, pedestrians, road) from the semantic segmentation map.									
Combine information with the depth camera information.									
Combine RGB camera with semantic segmentation map to extract the RGB bounding box for the traffic light									
Build traffic light classification model- red,green,yellow- or just use opencv to detect color									
Prepare final report, code comments and code refactoring									
3. Path planning (Geometric representation of a route, high-level route information)	Jesco Melzer								
Getting familiar with base code (run simulation, create a rostra of messages)									
Research methods and algorithms for implementation									
Implementation of less then 10 goal points									
Implementation of OMPL (Open Motion Planning Library)									
Integration									
Prepare final report, code comments and code refactoring									
4. Trajectory planning	Maxime Kleinhans and Mohammadali Rahmati								
Getting familiar with base code (run simulation, create a rostra of messages)									
Research methods and algorithms for implementation (DWA)									
Generate the car path manually									
Writing Node collision probabilities and trajectory generator									
Incorporate performance metrics									
Prepare final report, code comments and code refactoring									
5. Control and FSM	Sergio Zerpa and team								
Getting familiar with base code (run simulation, create a rostra of messages)									
Research methods and algorithms for implementation									
Implement a motion control algorithm to regulate acceleration, braking, and steering rate.									
Incorporate a state machine to manage traffic lights (and road rules)									
Improve performance of whole system									
Prepare final report, code comments and code refactoring									