Team Rebooters

Bosch Future Mobility Challenge 2023

Report No: 2

Team: ND RTS

Date: 20.01.2025

Introduction

The current report summarises the technical progress of our team, particularly focusing on the activities planned during this period.

Planned activities

Our teammates' responsibilities are as follows:

- Camera handling, preprocessing, noise cancelling and ROIs definition < Radu and Denis >

- Lane detection, Traffic signs detection, Lane following and speed control < Radu>

- Define project architecture and communication between packages < Adelin>

- Intersection detection and Intersection navigation < Nicolae>

- Team defines and creates its own physical testing environment < Danut>

Status of planned activities

All the planned activities from last month that have been postponed onto January have been successfully completed, including: defining the project architecture and the communication between packages, and establishing a physical testing environment.

For January, we focused on intersection handling and made good progress. Several areas still need to be refined, including:

- Decision making defining

- Intersection navigation

- Lane following and speed control

- Robot turning precision and intersection navigation

- More accurate sign detection

Technical Upgrades:

- we have replaced the original pi camera with a usb webcam

- Initiated development using ROS for improved system integration

- we are currently using a Jetson Nano temporarily borrowed from a collegue for testing purposes, ensuring we stay within our budget constraints,This is just a placeholder until we can acquire a Jetson Orin Nano

General status of the project:

The project is progressing according to schedule. We have clear solutions planned for current challenges and have successfully resolved several technical issues. Our implementation roadmap remains on track.

Upcoming activities

During the upcoming reporting period, our focus will be on:

- Defining and integrating additional sensors (IMU, distance sensors)
- Testing server information integration (localization, vehicle interaction, GPS)
- Path planning and validation implementation
- Decision making framework development
- Intersection navigation improvements
- Lane following and speed control refinement
- Curve handling optimization
- Intersection navigation capabilities
- Development of parallel testing methodologies
- Tested multiple methodologies for parallel development p