Report No 1 

Team RoboBadgers

Date 12/13/2024

**1 Introduction**

This report presents the key activities, team efforts, and progress of the **RoboBadgers** team for the Bosch Future Mobility Challenge competition.

***Key Activities***

***Planning:*** Defined roles and responsibilities clearly, chose and approximate project timeline and goals.

**Vehicle System Initialization:** Configured both the Raspberry Pi 5 and the Nucleo Board and first started the Dashboard and computer simulation Servers.

**Code Research and Debugging:** We studied the code of all the parts like Brain, Computer, Embedded. This helped us gain a perspective on the code structure and logic.

***Changes***

Decided to purchase the Raspberry PI AI Hat, to drastically enhance system image processing capabilities and free the RPI5 processor for other tasks.

**2 Planned activities**

**1.Planning**

* Decided each individual team’s member strengths related to the project’s needs.
* Assigned roles to everyone
* Decide on an initial timeline, that would align with the organizers requirements.

**2.Documentation reading**

* Cloned the GitHub repository and studied the code for all components.
* Read the documentation from the contest website.

**3. Study the hardware of the car**

**4. Set up the software on the RPI5 and Nucleo**

* Cloned the official git repo and patched faulty code.

**5. Start the car & ensure that the already existing functionalities work**

● Define the roles of each member

**3 Status of planned activities**

-> Study the documentation - **100% completed**

-> Study the hardware of the car - **100% completed**

-> We noticed that the BNO sensor is placed close to the DC motor. This will cause noise in the readings. So we will investigate a solution.

-> We attached a **TimeOfFlight** sensor that we’ll use for obstacle detection.

-> Study the Brain code & set it up: **90% completed**

-> We tested the sensors and made sure we can receive data from them.

-> Start the car: **completed**

-> Define the roles of each member: **100% completed**

We established the main role of each member. However, the roles are flexible, as our skillsets are mostly similar, everyone having their on unique suplimentary skill.

**4 General status of the project**

At the moment, the car can be controlled from a computer, where we can also see a live stream from the camera.

We still have some small problems to fix with the Brain code, but this issue is of upmost priority.

**5 Upcoming activities**

We are going to investigate and come up with a solution regarding the problem with the servo motor (which causes the Raspberry Pi to shut down when used). We expect to finish lane detection & traffic sign recognition modules by the next status.

After sorting everything out, we will start testing on the physical track that is in our faculty.

