# 1 Introduction

Welcome to the first report from Hugo Bosch team.

The initiation of our task management and project management within ClickUp marked the commencement of a systematic approach to handling the multifaceted components of this challenge. This platform not only facilitated organized project management but also served as a central hub for documentation and progress tracking.

Recognizing the need for specialization, our team was judiciously divided into three core responsibilities: Hardware, Image Processing/Recognition, and Path Algorithm. This deliberate structuring ensured focused expertise in key domains, promoting efficiency and proficiency in addressing the distinct challenges posed by each aspect.

The implementation phase witnessed the application of algorithms that will be used for Lane Following and Path Planning.

In anticipation of the official vehicle's arrival, a side Nucleo was procured for testing and trial purposes.

Throughout this journey, collaboration has been a cornerstone of our strategy. The deliberate division of responsibilities, coupled with the guidance of a mentor, has engendered a cooperative and supportive environment, enhancing the efficiency and quality of our endeavours.

As we eagerly await the arrival of the designated vehicle, the team remains focused and diligent in our pursuit of meeting the challenges presented by the competition. This report serves as a documentation of our progress, achievements, and strategic approach in navigating the complexities of this innovative challenge.

# 2 Planned activities

Activities were divided into 5 phases:

1. Round up – establishing foundations in task and project management and communication channels (Click up platform, Discord server, GitHub project, Forum acc)
2. Divide – 3 teams plus supporting role from mentor
    a. Computer Vision: Dragan and Zarko
    b. Path Algorithms : Uros and Lazar
    c. Embedded : Nemanja
    d. Support and monitoring : Aleksandar (Mentor)
3. Ramp up
    a. Read documentation (Competition documentation, Competition regulation, diagrams, and etc.
    b. Check provided code ( Embedded platform, Brain , Computer repos code)
4. Setup
    a. Install needed SW, IDEs , and etc.
    b. Setup Simulator
    c. Debug Test&Try Nucleo
    d. Setup Brain and Computer project
    e. Receive and assemble car
5. Implementation research
    a. Computer Vision: Basic Line detection, Camera calibration, Image transformation, Measure distances between objects on image

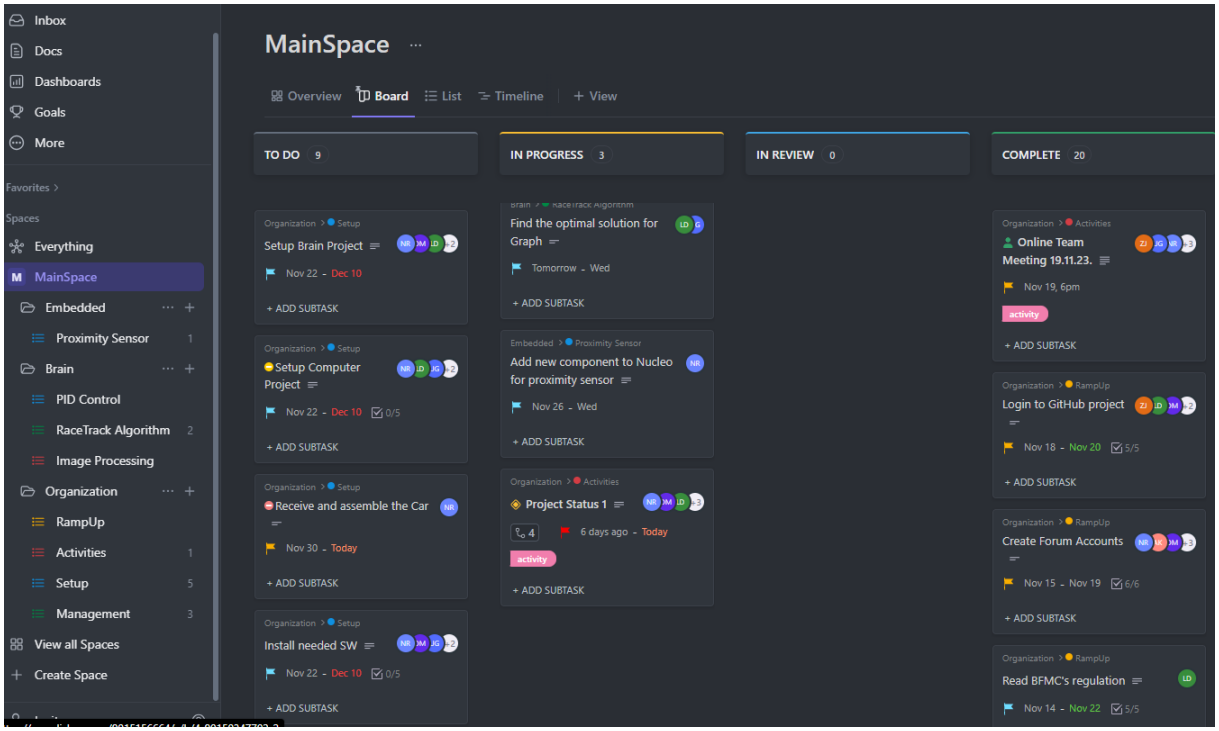
b. Path Algorithm : Find optimal solution for Race Track graph and Implementation of graph algorithm solution
c. Embedded Platform: Add new component for Embedded platform for Proximity Sensor

# 3 Status of planned activities

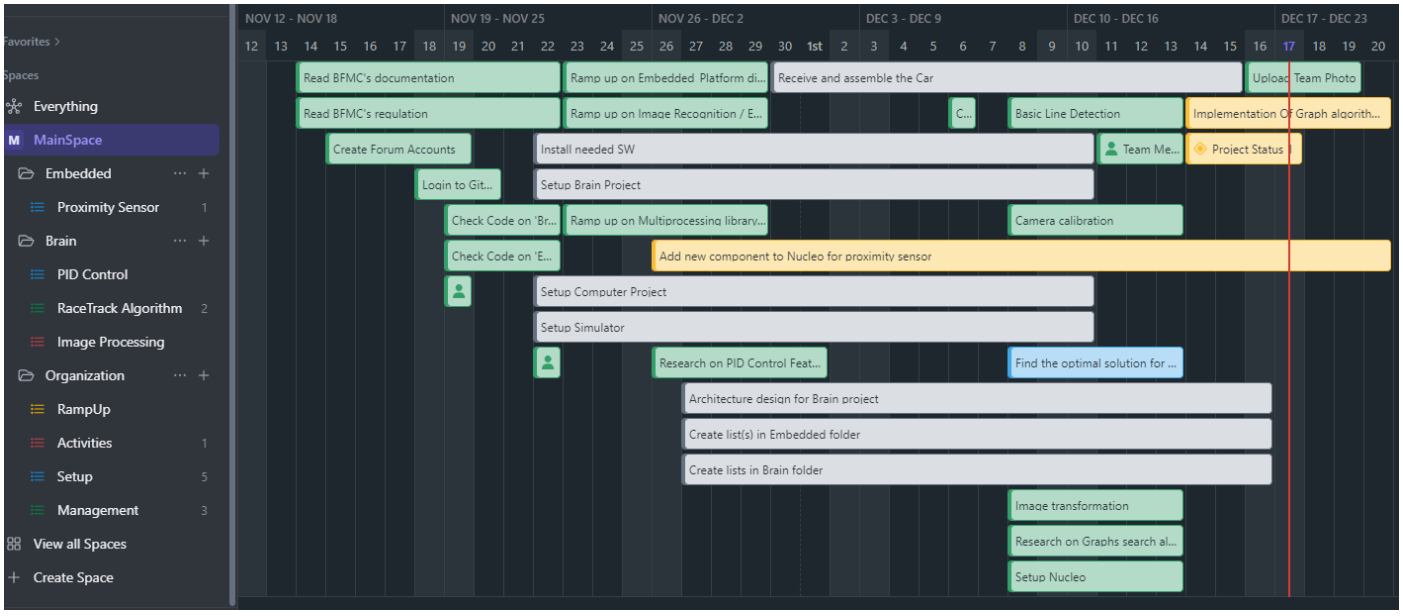
In total, 32 tasks were created, from which at the moment:

1.Done: 20
2.In progress: 3
3.In review:1
4.ToDo: 9

Screenshot attached:




Timeline of activities:




In general, most of the planned activities were completed successfully. Team is aware that we have open items.
Main issue and blocking point was not receiving the car so far (As for most teams 😊) .

Due to this, 3 tasks are overdue. Also, there is a need to define tasks and lists (features) in Click Up for the whole project timeline.

# 4 General status of the project

After sprint review we defined 4 keystones we need to address here:

1. **Workload on the Horizon:** Anticipating a substantial workload, the team acknowledges that a considerable amount of work lies ahead, underscoring the need for a concerted effort to navigate through the intricacies of the project.
2. **Acceleration Required:** A collective sense that we are slightly off the schedule has propelled us to shift into a higher gear, intensifying our focus and commitment to ensure that we not only catch up but surpass our projected milestones.
3. **High Morale Prevails:** Despite the challenges, morale within the team remains exceptionally high, fuelled by the shared passion for the project's objectives and the belief in our collective ability to overcome obstacles.
4. **Collaborative Dynamics:** The collaborative spirit within the team continues to thrive, fostering an environment of seamless cooperation and mutual support. Our mentor's guidance further enhances our collaborative dynamics, providing valuable insights and direction.

# 5 Upcoming activities

For the next sprint (due 14.01.2024):

1. Computer Vision:
    a. Implement Lane detection based on the researched algorithms from this month
    b. Implement Traffic Sign detection and classification
    c. Implement Distance Measuring from lines on the track
2. Path Algorithm : Continue research of path planning algorithms
3. Embedded Platform: Enable communication with Proximity Sensor, extract and process useful data