

SENSORIZATION AND PERCEPTION FOR CONTROLLING AUTONOMOUS MOBILITY VEHICLES

Presented By Anderson Lourenço | Daniel Pedrinho | Gonçalo Cunha | Pedro Torres | Tomás Laranjo | Simão Ildefonso

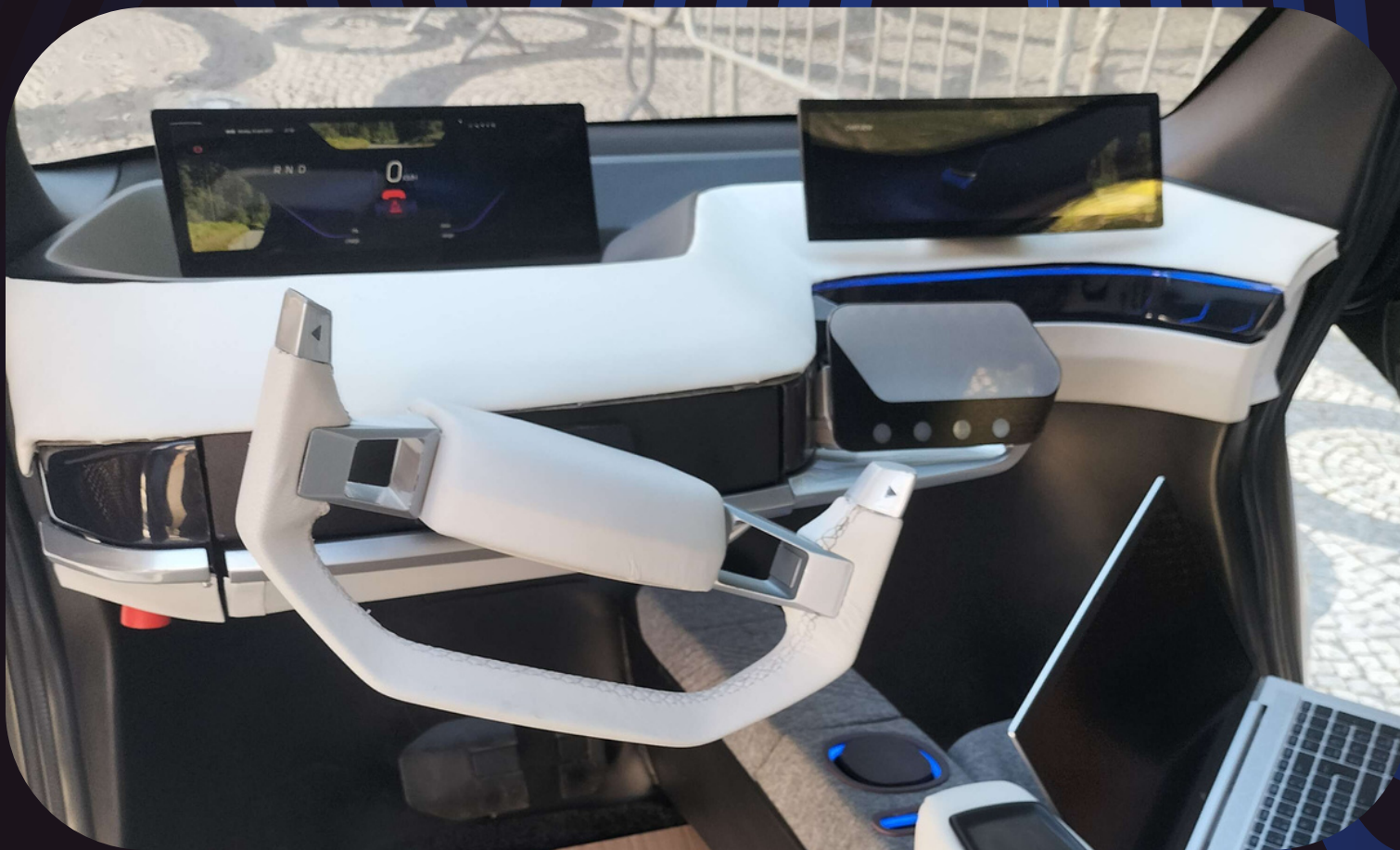
Project Scope

CONTEXT

Autonomous car technology and smart network systems like the Aveiro Tech City Living Lab (ATCLL) are continuously evolving and improving

PROBLEM

Limited vehicle sensor range, lack of connectivity with other autonomous vehicles and networks



Objectives



Implementing intervehicular communication between autonomous vehicles

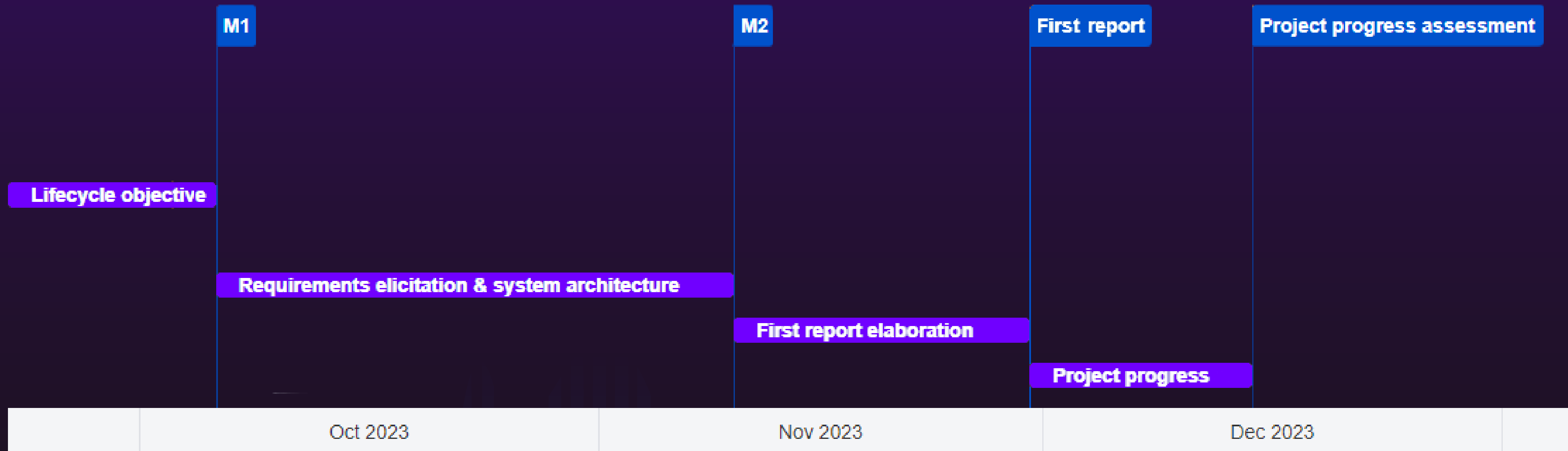
Integration with the ATCLL network

Integration of sensors in autoware and the on-board control system

System performance optimization

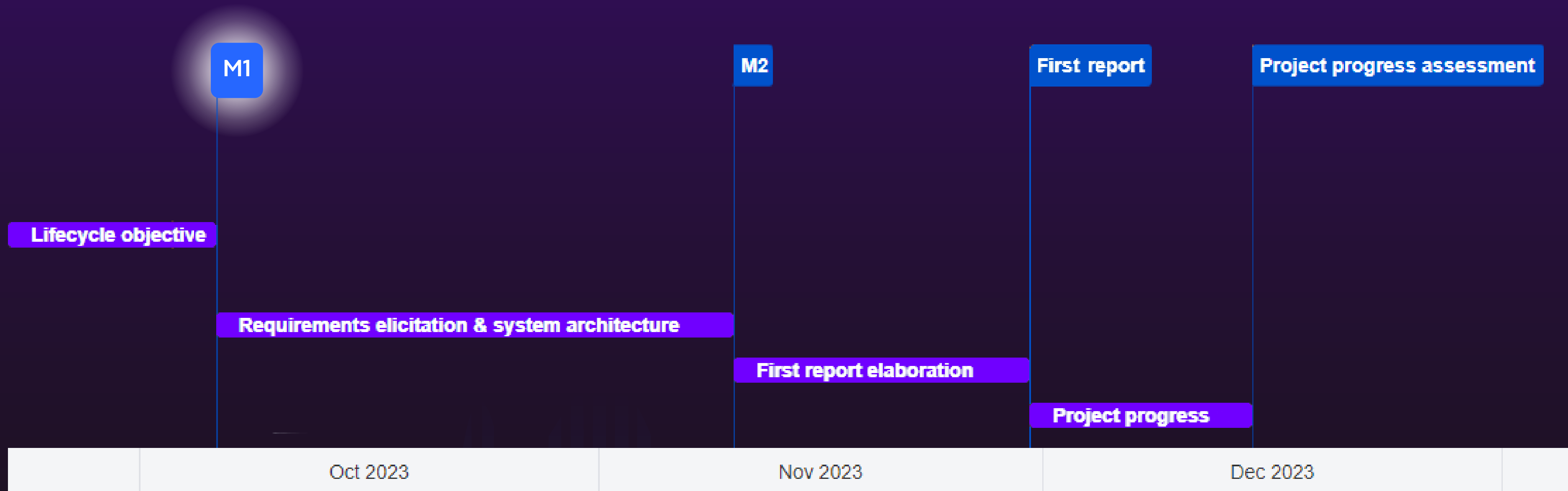
Improvement of the computer vision modules

Planning



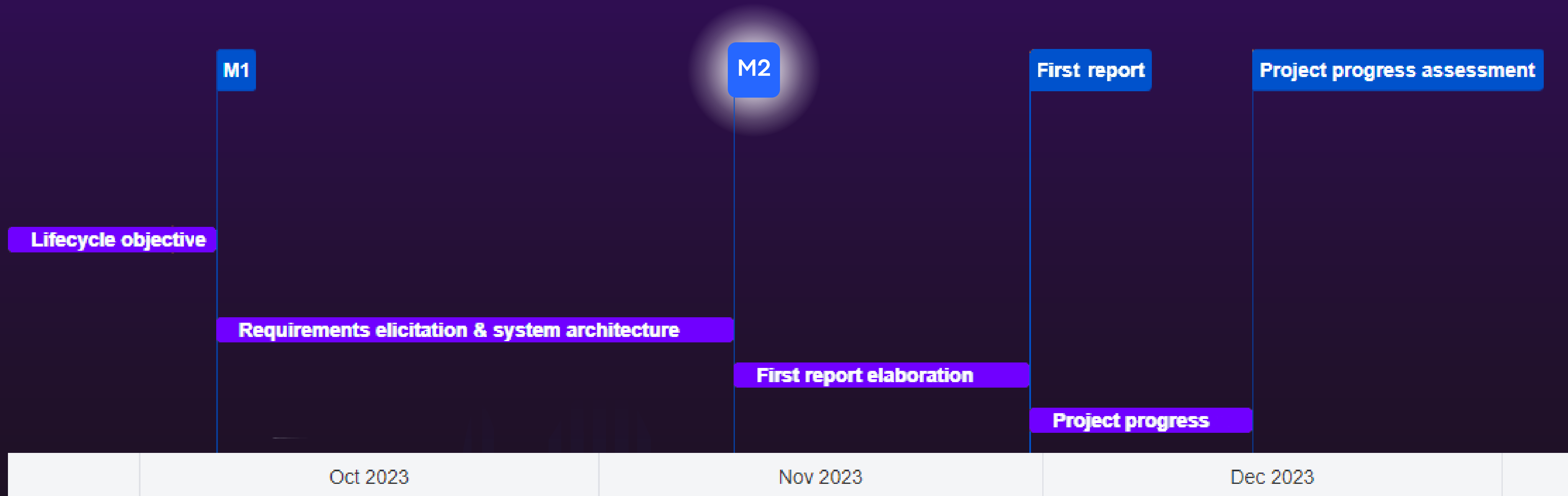
M1-Inception

During this phase, the project's scope, lifecycle objectives, overview of related work and work plan are defined



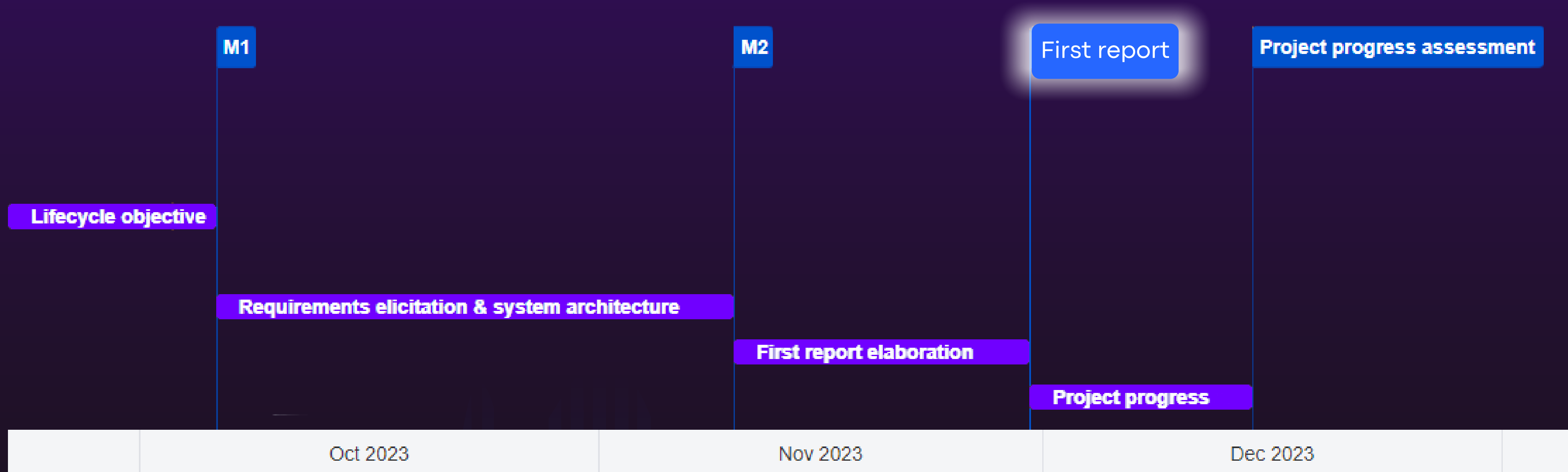
M2-Elaboration

In this phase of the project, we will define both the non-functional and functional requirements while elaborating the system architecture



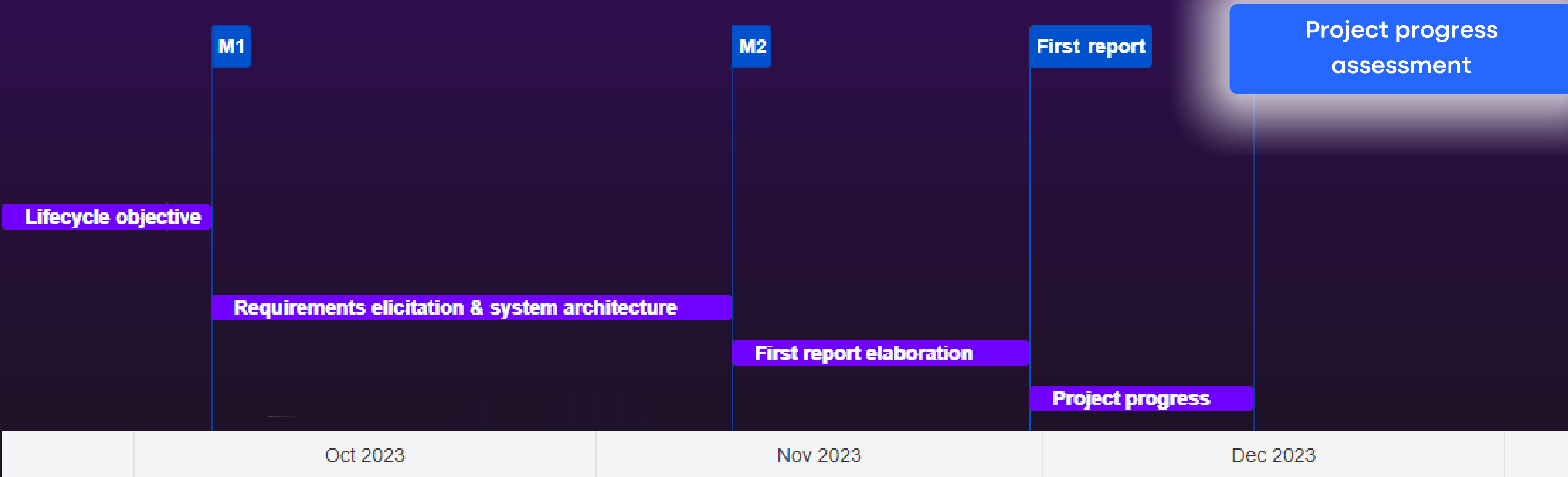
First Report

First version of the report is done and submitted. Including the introduction, related work, requirements and architecture



Project Progress Assessment

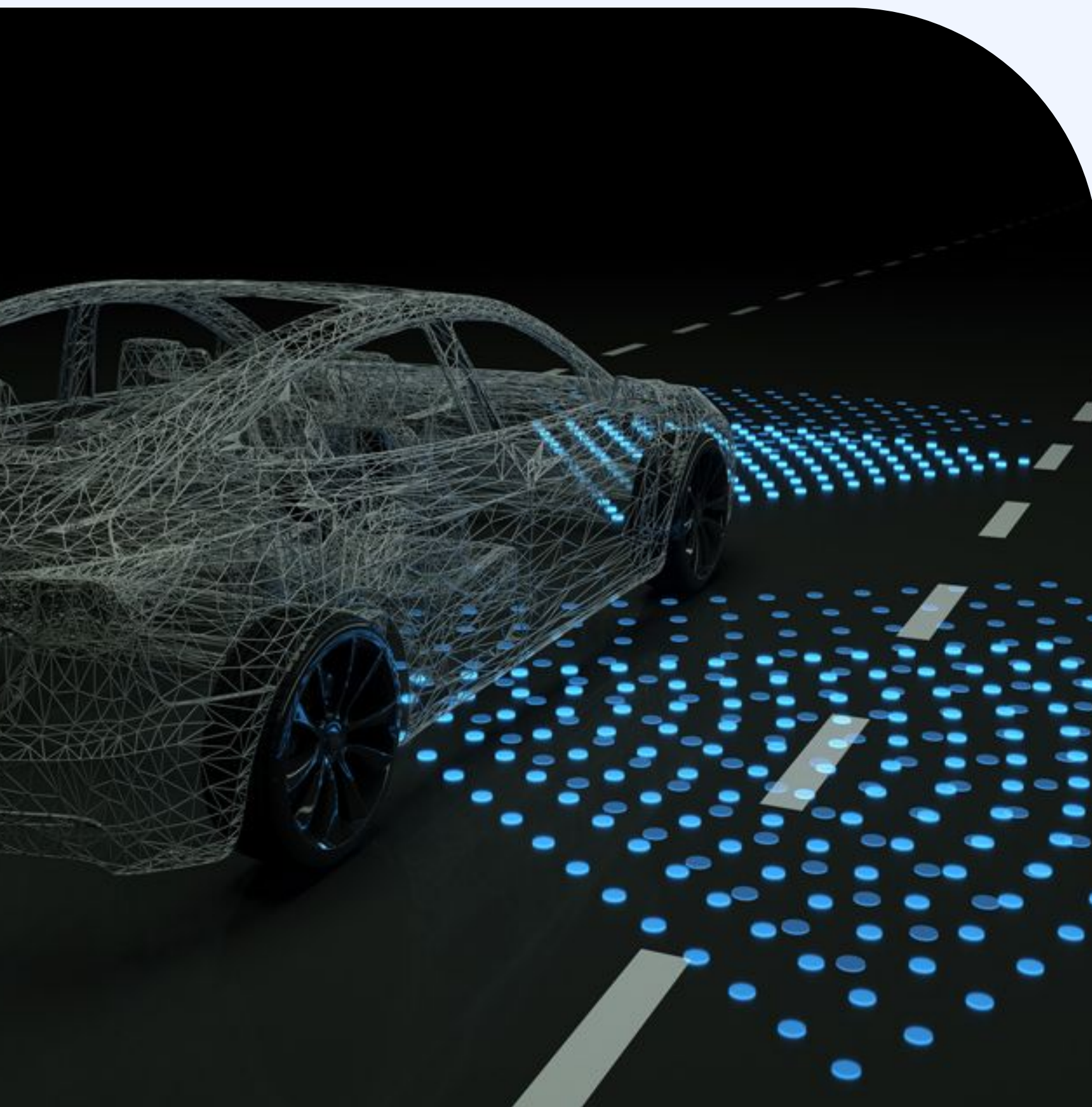
An informal presentation with the supervisors to see how the project is progressing



Tasks

1. Learning to utilize the Autoware Autonomous Driving Framework and its AWSIM simulator
2. Defining requirements, architecture, component interaction, and their interplay
3. Utilizing and improving the people, vehicle, and obstacle detection algorithms, by optimization and by “feeding” them more varied data
4. Implement the interaction between the Autoware framework and the V2X service stack.
5. Conducting tests in simulation environments, laboratory settings, and in the infrastructure of Aveiro

State of the Art



- J. Amaral et al., "[Autonomous Shuttle Integrated in a Communication and Sensing City Infrastructure](#)", 2023 IEEE International Conference on Mobility, Operations, Services and Technologies (MOST), Detroit, MI, USA, 2023, pp. 96-104
- T. -K. Lee et al., "[Building a V2X Simulation Framework for Future Autonomous Driving](#)", 2019 20th Asia-Pacific Network Operations and Management Symposium (APNOMS), Matsue, Japan, 2019, pp. 1-6
- Autoware Foundation
- AWSIM

COMMUNICATION METHODS

PROJECT
MANAGEMENT



DAILY
COMMUNICATION



REPORTING TO
SUPERVISORS



CODE MANAGEMENT



THANK YOU! ANY QUESTIONS?

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