Intelligent Boat Patrolling System

Project presentation – RSA

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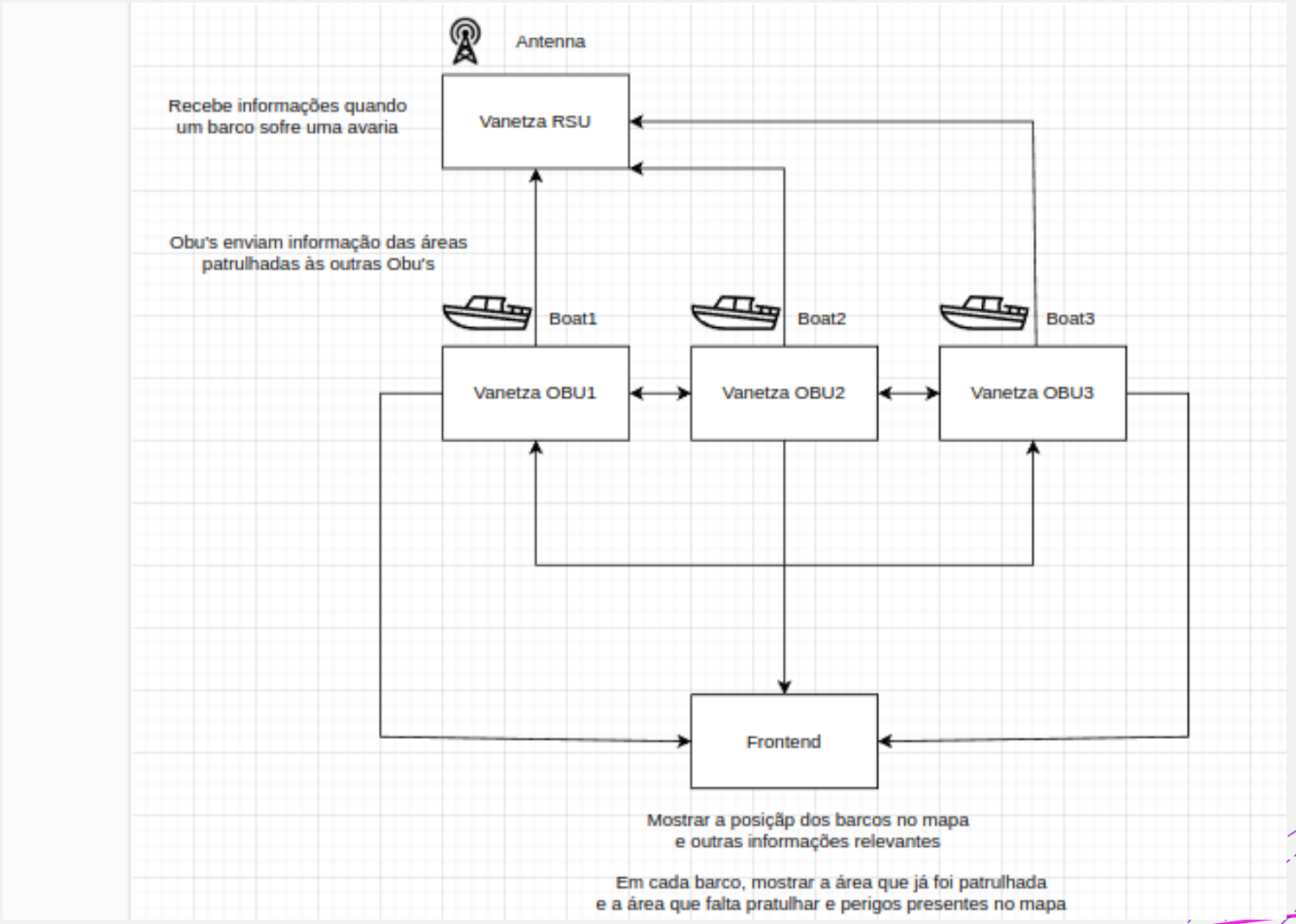
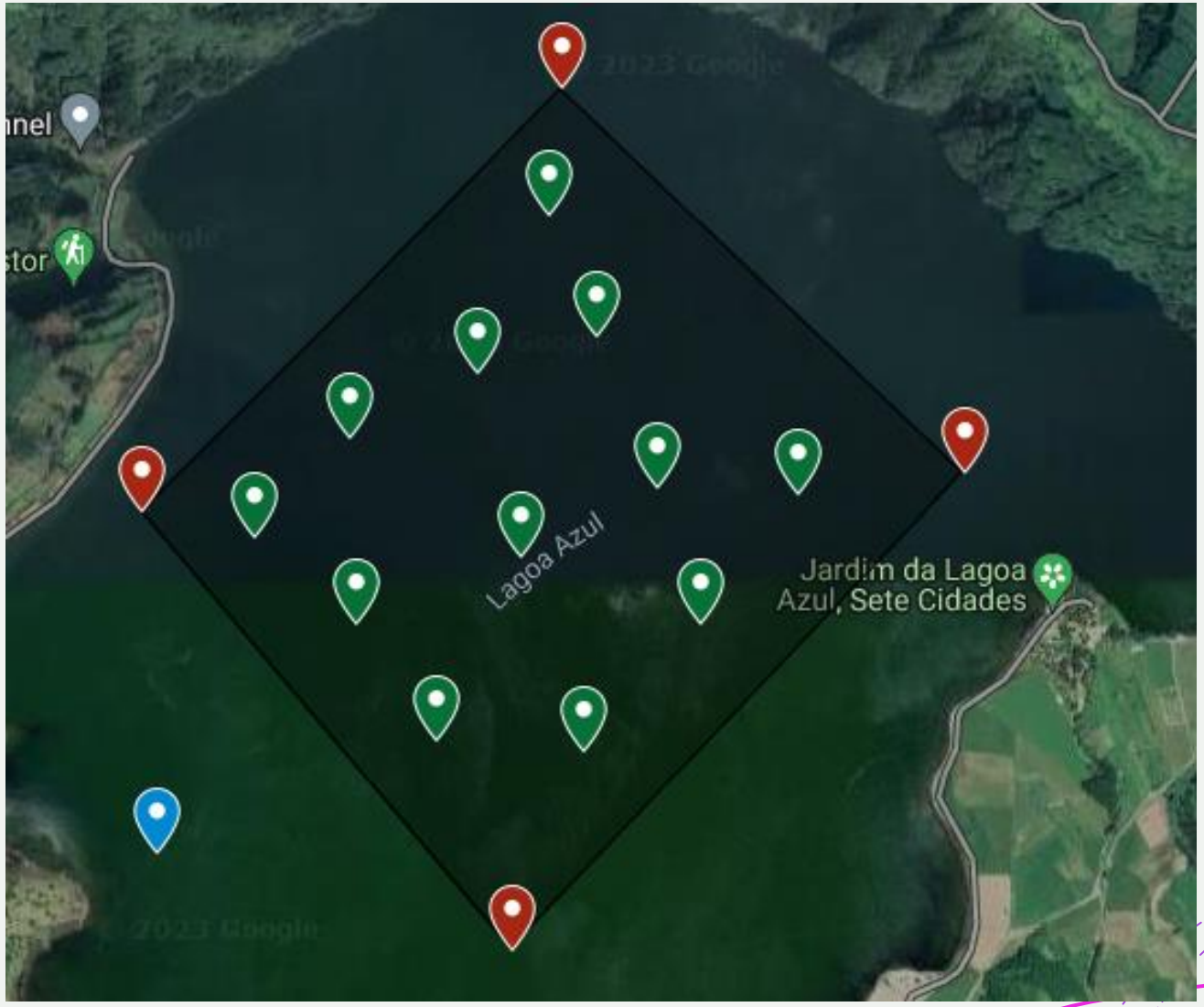
Objectives

- Develop a patrol system using boats in a maritime area to identify dangers and other relevant information.
- The area is divided into cells to ensure that two or more boats do not pass the same cell.
- Create real-time map to track boat movements and identified dangers.
- Send DENM's when something new occurs, such as the discovery of a new cell, or the failure of a boat
- Develop an algorithm using OpenWeather data to determine the safest path for the boats based on wave intensity and wind speed.

Architecture



Maritime Zone



Timeline

- At the start, the boats/OBUs will be in a starting position and there will be 4 points that defined the maritime zone, shown in the previous slide.
- Then the boats go towards the nearest vertex closest to them. When they reach the zone, the boats will split up to avoid patrolling the same cells.
- Upon reaching the zone, the boats will analyze the cells and then send a DENM between them with the result of the cell analysis, and the map is being updated.
- During the whole simulation, the OBUs are sending CAMs with the location.
- If a boat fails, it sends a DENM to a RSU to notify of the failure and the place where it stopped due to the failure will be placed on the map.