Parking Lot Occupation

Project Presentation - RSA

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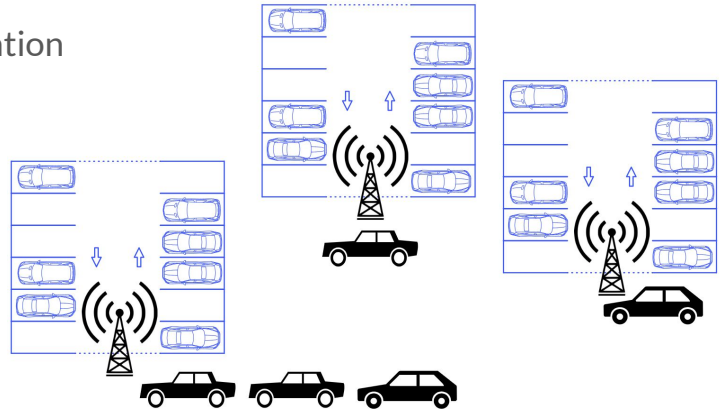
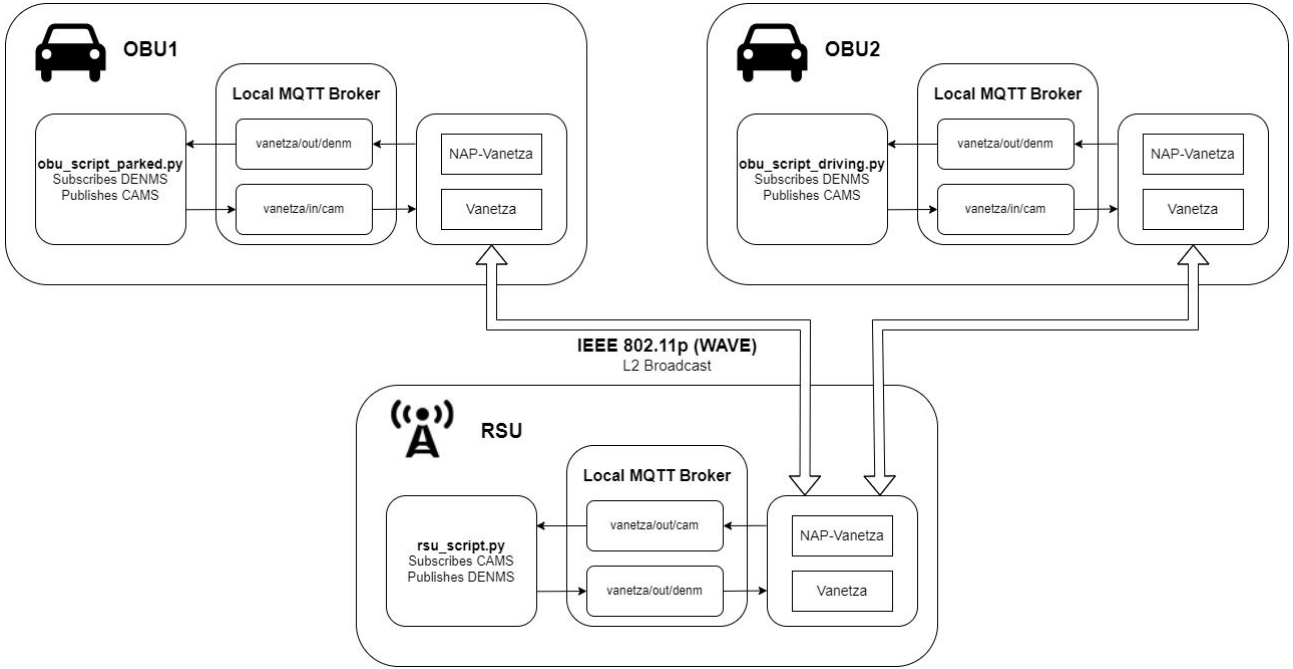
Objectives

- Develop an autonomous system which allows to control parking lot occupation
  - Vehicles are notified about parking lot occupation before they arrive to it
  - Allows to make traffic more fluid
  - Avoids waste of time looking for a spot
- RSUs at the parking entrance detect the parking occupation
  - Flood that information to other vehicles
  - Vehicles take decisions based on information received
- Messages Used include
  - DENMs to report parking lot occupation
    - CauseCode - 37,
    - subCauseCode report parking occupation
  - CAM to create awarness of vehicles

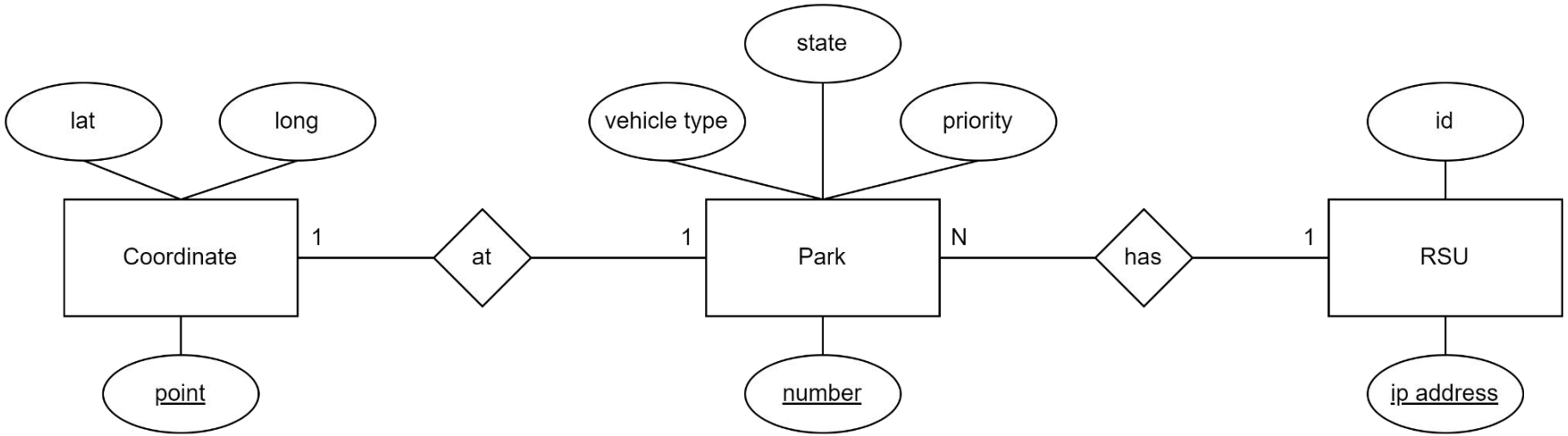


Architecture

- 3 Docker Containers:
  - RSU1, 192.168.98.10
  - OBU1 192.168.98.30
  - OBU2 192.168.98.40
- Docker Virtual Network
  - vanetzalan0
  - 192.168.98.0



Database diagram



Park & Circuit

Timeline

- At the start OBU1 is parked, OBU2 will start circuit in point 4 and RSU is waiting for CAMS
- OBU2 goes through 3 points (point1 -> point2 -> point3)
- When RSU senses CAMS inside a certain area, replies with a DENM informing about parking occupation
- OBU2 goes to the entrance of the parking lot and if DENM message informs that there is a free spot, then OBU2 goes inside the park and parkes in a free spot
- OBU2 sends a couple of cams indicating that it is parked, and simulation can finish
- During the entire simulation, OBU1 is sending CAMS about it’s position