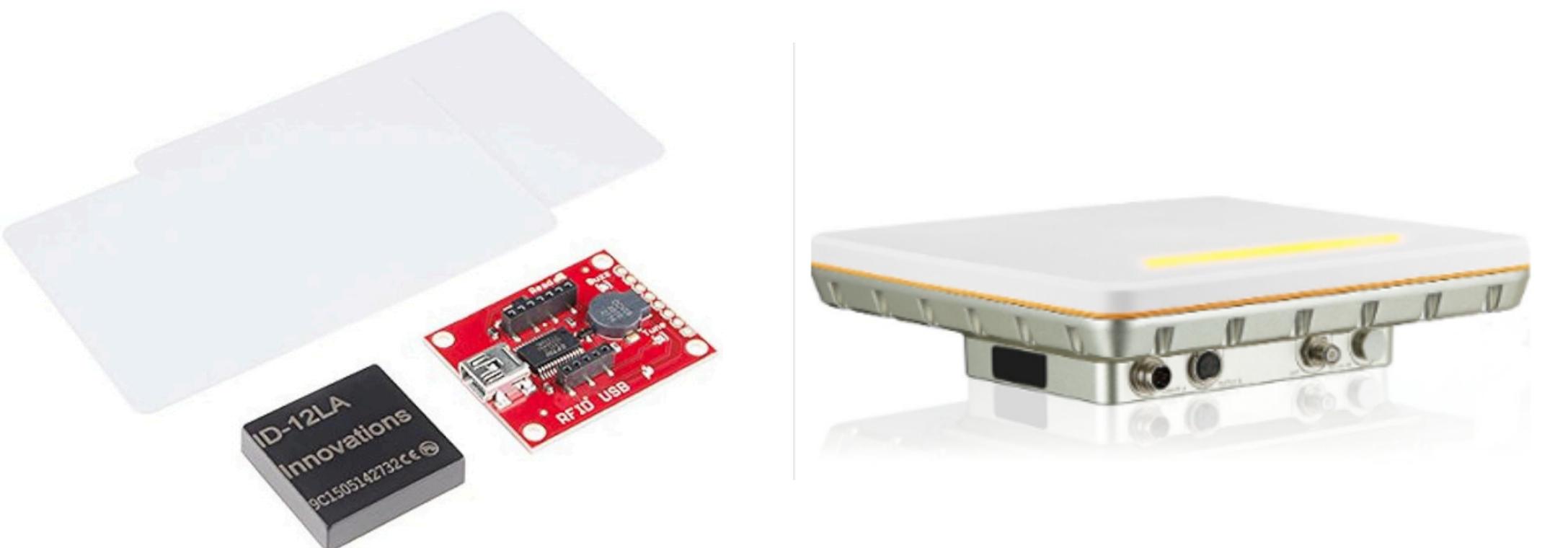


Problem Statement

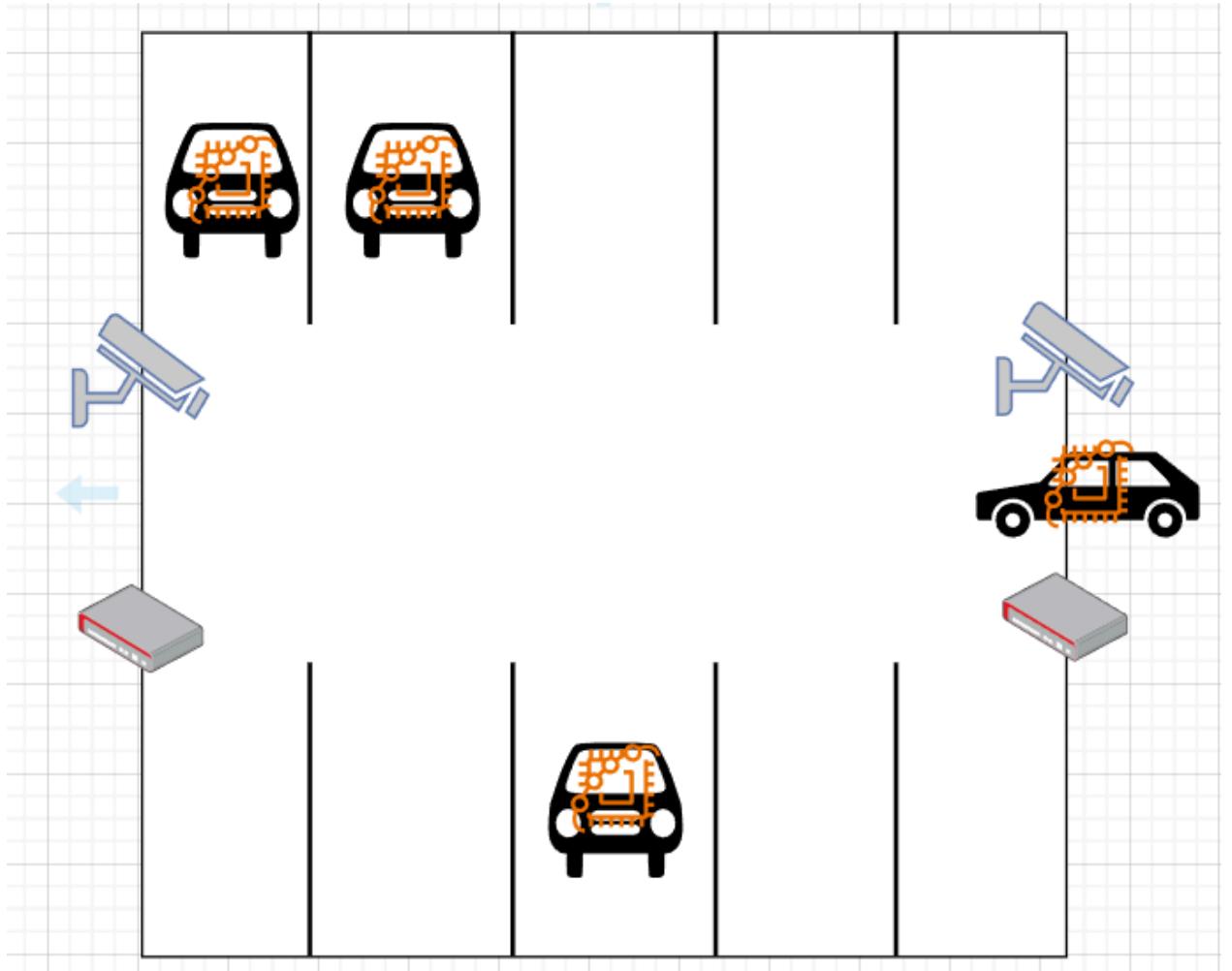
- Although parking lots are efficient, they should be better monitored. Efficiency would be increased by using a new management system, but the cost is prohibitive.
- Alternatives to improve campus security have been rejected because they would have an adverse impact on the financial situation of families of JBU students.
- To guarantee the welfare of students, the institution must strike a balance between strong security measures, economical responsibility, and ideal parking efficiency.

RFID

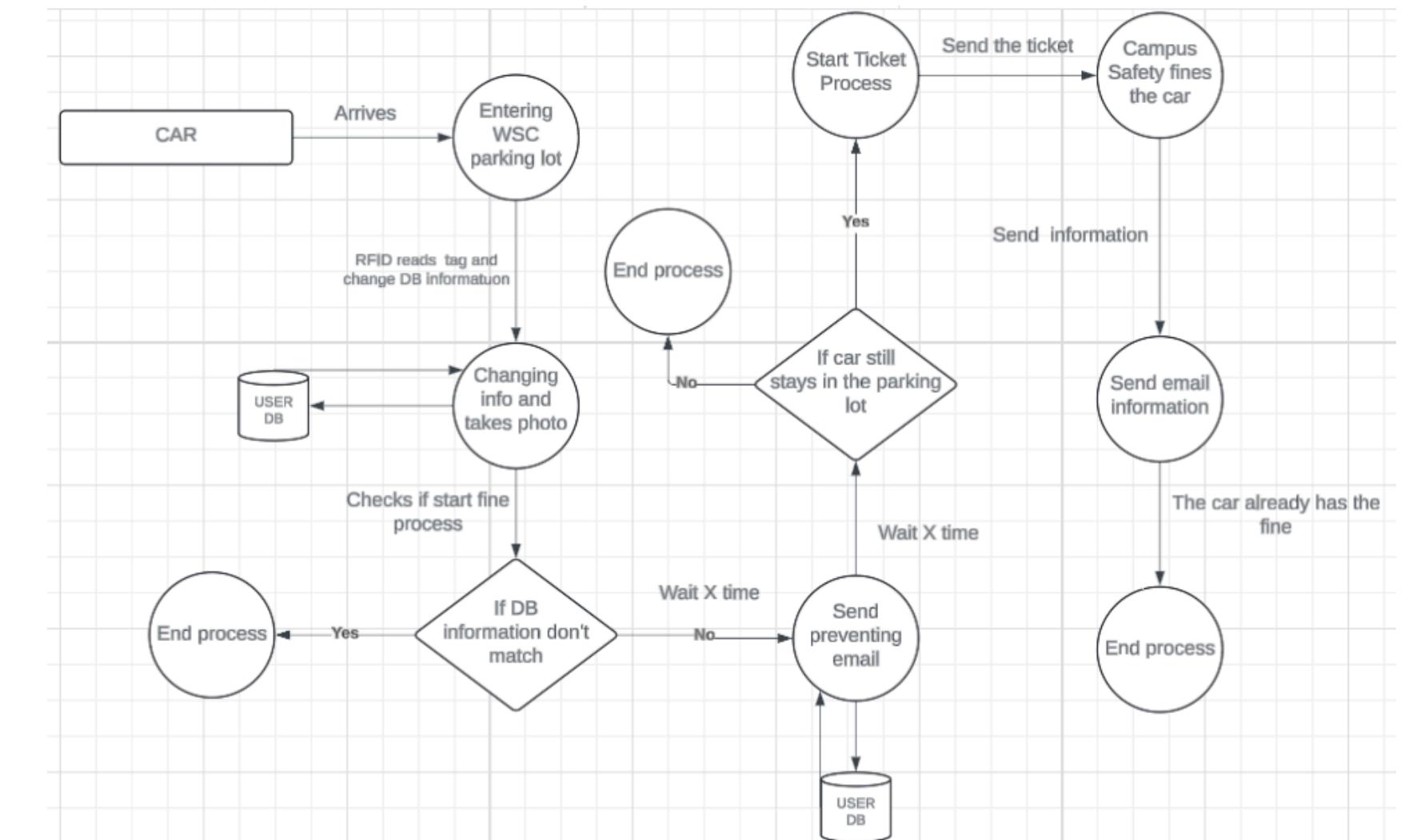
- Device used for project:
 • Sparkfun RFID Starter kit
- Device to use on real scale project:
 • UHF RFID IP67 Integrated Reader



Example

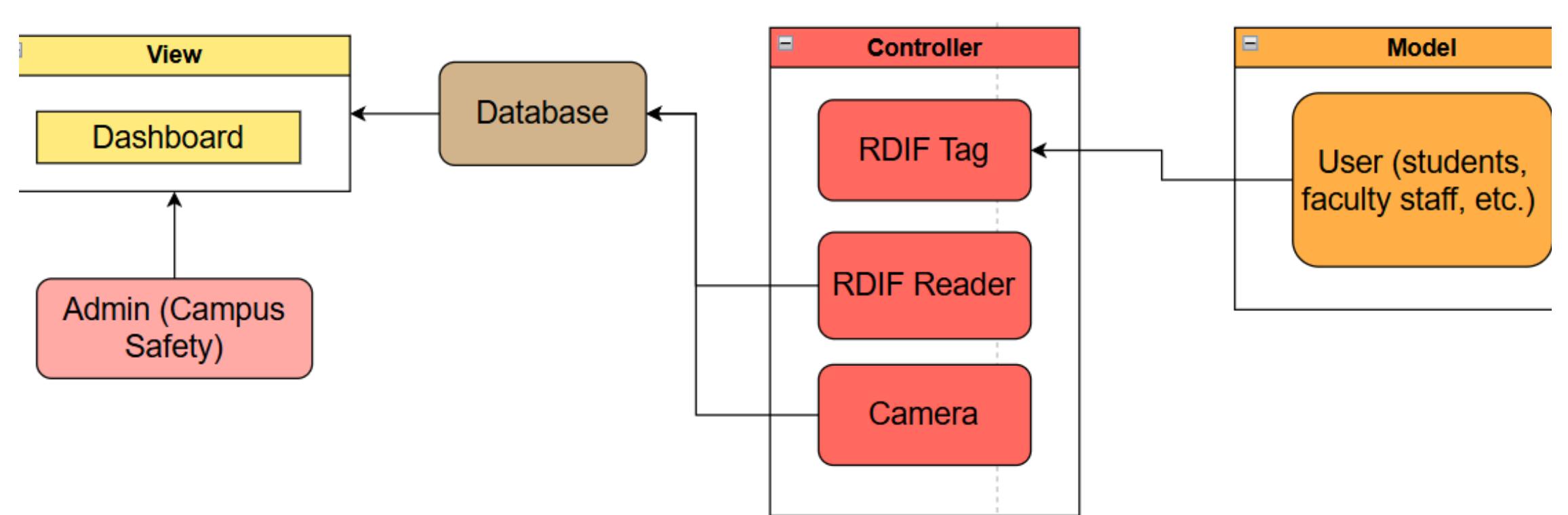


Data Flow Diagram Lvl 1



Solution

Architecture



Scrums

- SCRUM 1: RESEARCH AND PROJECT PLANNING
- SCRUM 2: RFID DATA PROCESSING AND MONITORING
- SCRUM 3: ADMINISTRATIVE TOOLS AND MONITORING
- SCRUM 4: TESTING AND OPTIMIZATION
- SCRUM 5: FINAL DEPLOYMENT AND ESTIMATION

Programming tools



Functional & Non-Functional Requirements

Functional Requirements

ID	Requirement Description	Priority
FR1	The system must allow administrators to manage user and vehicle data.	High
FR2	The system must monitor vehicle entries and exits using RFID technology.	High
FR3	The system must detect unauthorized parking behavior based on RFID location data.	High
FR4	The system must allow campus security to issue parking violations to offenders.	High
FR5	The admin dashboard must display real-time data on active violations and vehicle status.	Medium
FR6	The system must generate reports of violation history per user.	Medium
FR7	The system must send notifications or emails to users who receive violations	Medium
FR8	The system must log all student vehicle activity in a secure database.	High

Non-Functional Requirements

ID	Requirement Description	Priority
NFR1	The system must process RFID events and update the database in real time.	High
NFR2	The system must be user-friendly, especially for administrative staff on the dashboard.	Medium
NFR3	The system must be reliable, ensuring accurate tracking of vehicle movement.	High
NFR4	All user data and violation records must be securely stored in the database.	High
NFR5	The system should be scalable to support future integration with other campus services.	Low
NFR6	System response time for dashboard updates must be less than 2 seconds.	Medium

Gantt Chart

