The project

- A Device, Cloud and Processing infrastructure for distributed digital twins of herbaceous plant type greenhouses.
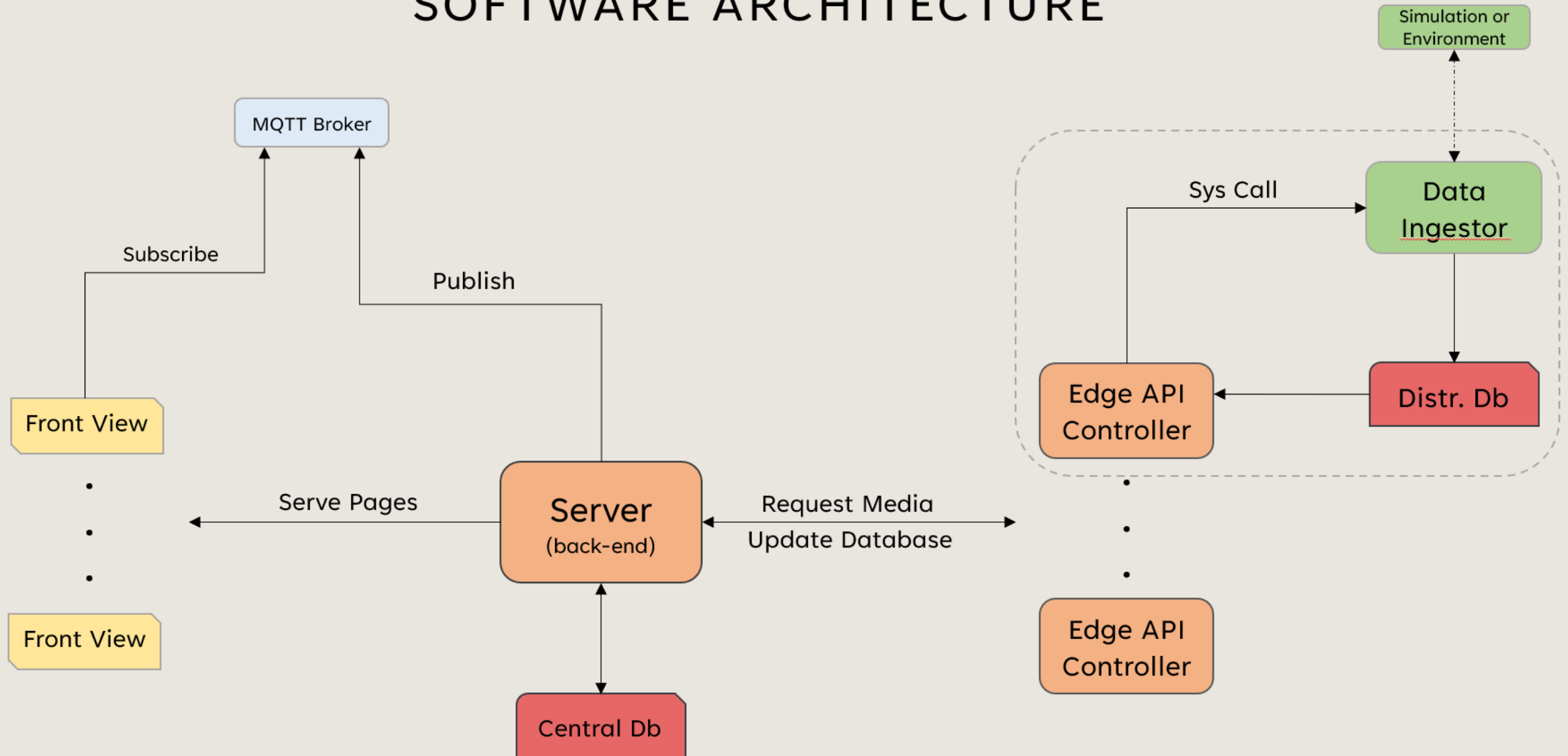
- Taking advantage of dwindling power and hardware cost for edge data ingestion we implement an AI solution in top-view image mapping and detection along with a distributed database cloud solution.

- Our cable-lift low cost and easy installation robot moves through the length of a greenhouse, takes top-down images and in real time maps it's position while detecting individual plants, saving multiple snapshots for each and forwarding metrics & sensor data to the cloud.
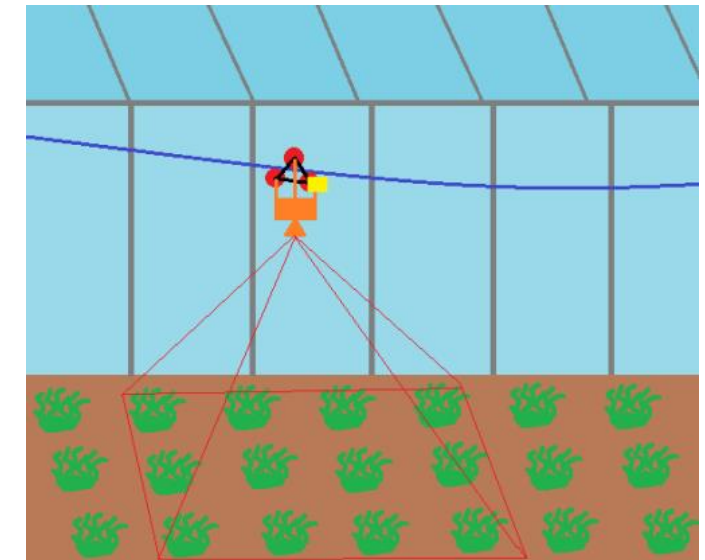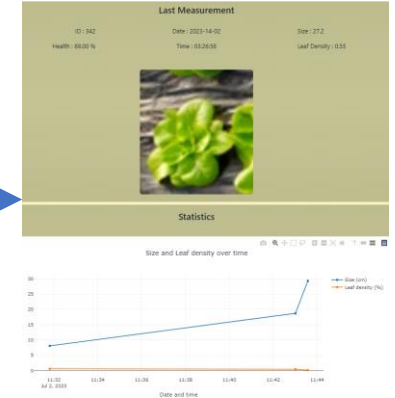
SOFTWARE ARCHITECTURE

DEVICE FLOW DIAGRAM

Camera

Motor
& Driver

Environmental Sensors
(Temp, Humidity, CO2 and more)

Sensor

Sensor

Sensor

GPIO PINS

USB

Dev Board

LAN

LAN

Access point

Central Db

Server

MQTT Broker

Mail Service

Front View

Internet