



IntelliCharge

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01. Introduction



What we achieved

- Usage of neural network to detect objects, face recognition, face expression recognition and licence plates to distinguish between normal and electric cars
- Developing an intelligent charging station interface to simplify the experience for the clients
- Creating a miniature charging station to emulate the real thing

02. Architecture

How is the project structured?



How did we structure the project?

- We used RabbitMQ as a central message broker
- Used a microservice approach using docker



03. AI

How did we implement Artificial intelligence?

Artificial Intelligence

- Object Recognition using the MobileNet v3 model to detect cars and faces
- Self-created model based VGG16 to recognize facial expressions
- Licence plate detection using an open model



04. Hardware

How did we simulate it?



Hardware

- Emulated smart charging station, using rgb strips and servo motors
- Used several IOT devices like Raspberry Pi and esp32 to add functionality
- RGB strips help giving indications to user



05. User Interface

How did we visualize it?

UI/UX

- Developed using React
- Supplies different information about the charging process
- Supplies the user with activities or POIs to visit while charging





Thanks!