



AWSSOME DAY

ONLINE CONFERENCE

2025 | APJ



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Smart traffic management

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Agenda

- Use case
- Solution approach
- Tech stack
- Demo
- Extensibility

Inefficient traffic signals



Solution approach

- Use camera (CCTV) feed as input source
- Leverage machine learning (ML) to detect the cars or vehicles on the road
- Use edge compute for fault tolerance
- Use of IoT to efficiently control traffic signals & decongest busy junctions
- Ability to create 'green corridor' for easy movement of emergency vehicle

AWS services used



Amazon SageMaker – to train & deploy ML model



Amazon S3 – for storing images

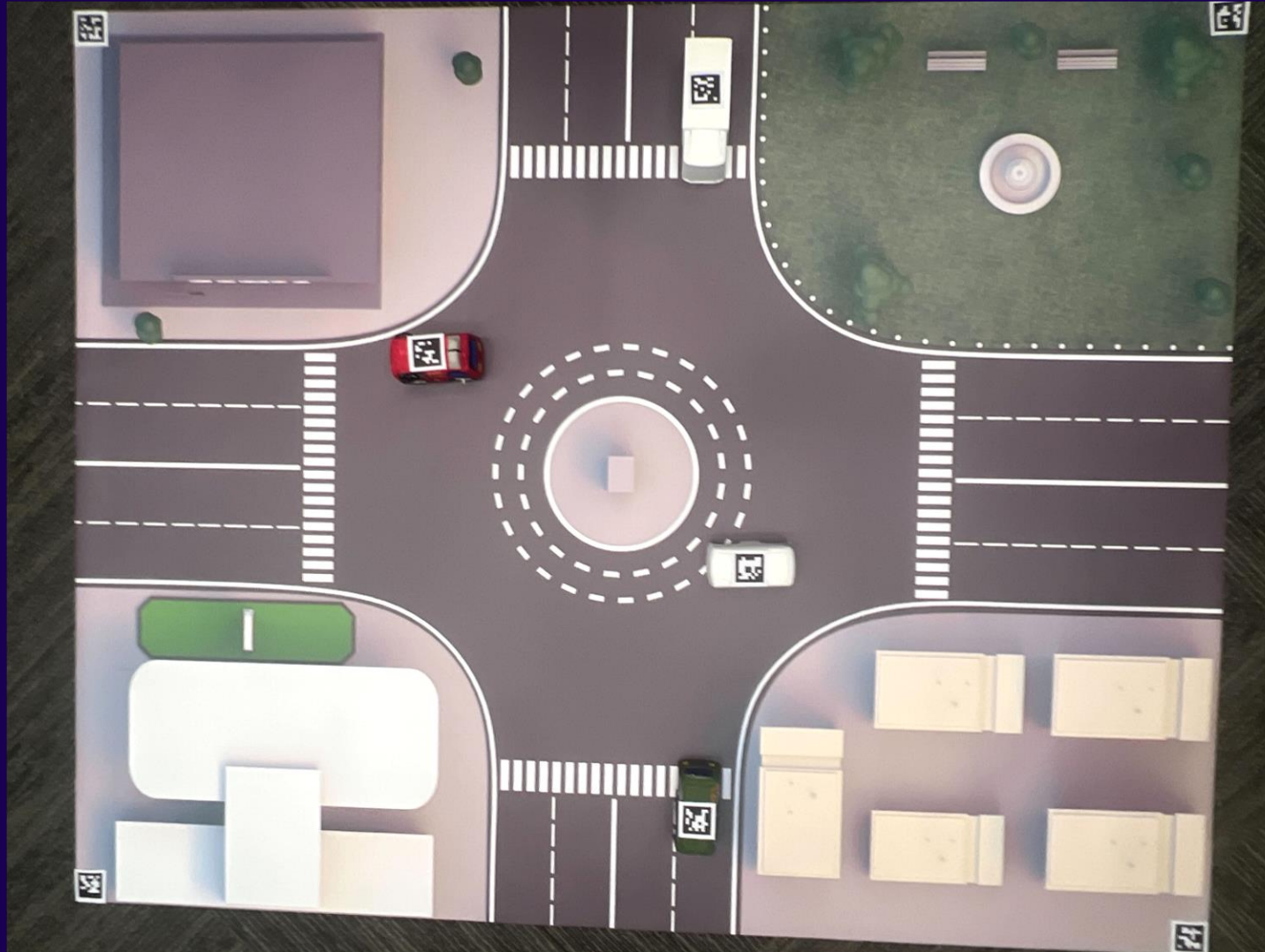


AWS IoT Core and AWS IoT Greengrass to perform inferencing at edge, run a Message Queuing Telemetry Transport (MQTT) broker, and control traffic signals

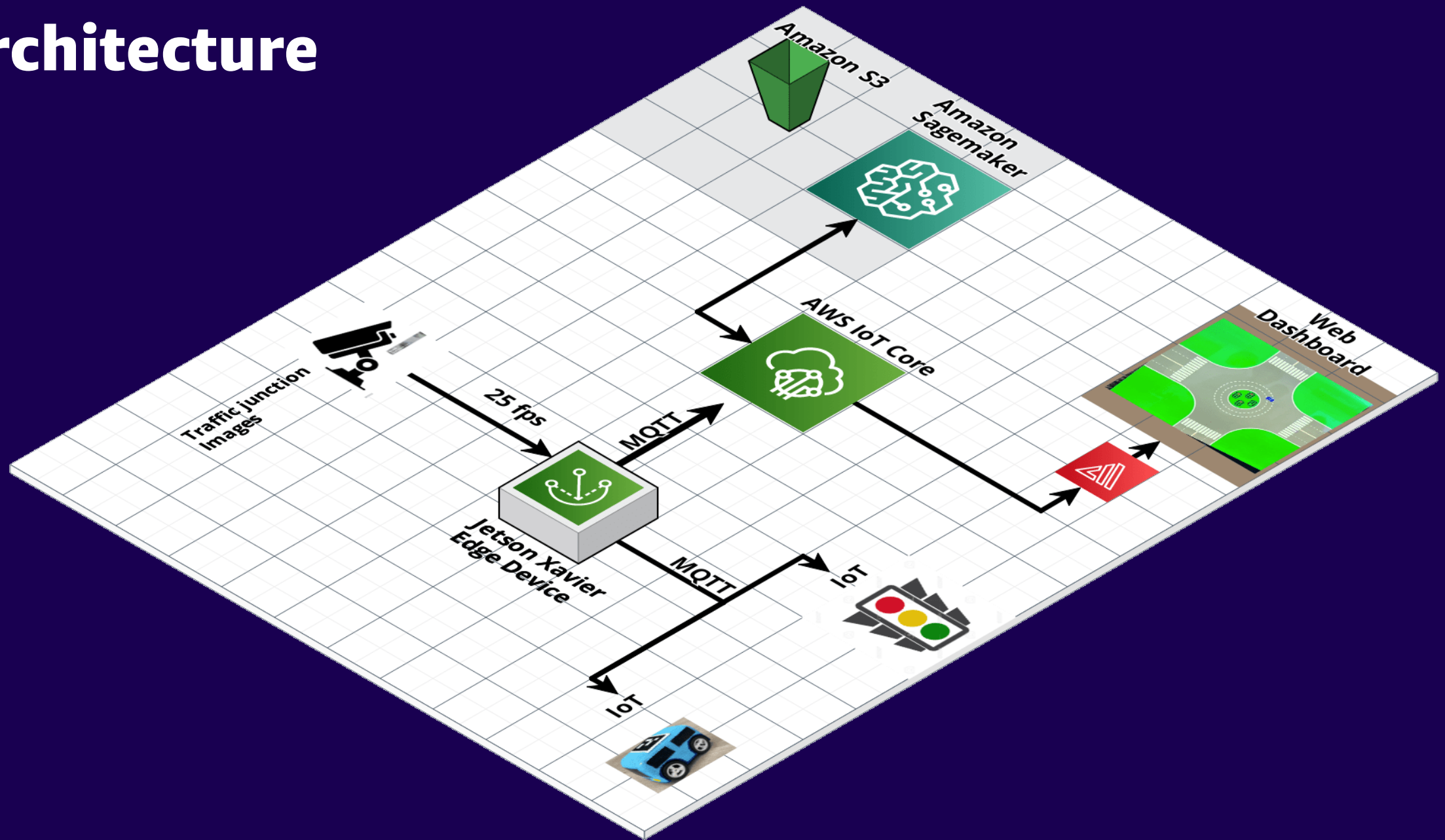


AWS Amplify – to build a real-time dashboard

Demo layout

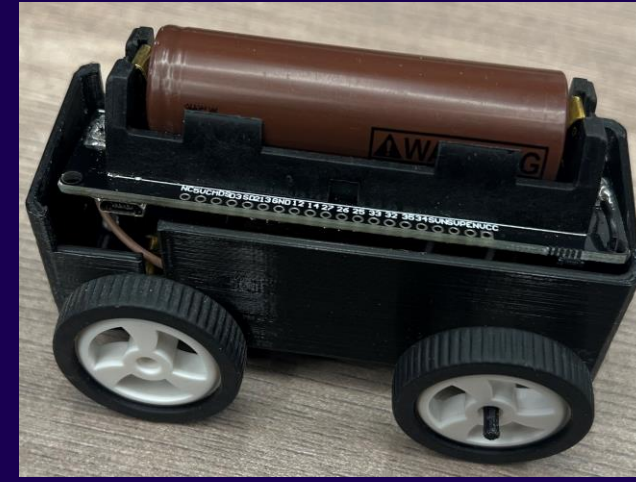
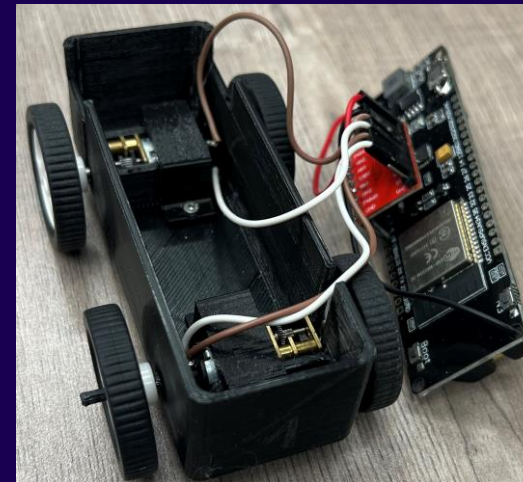


Architecture

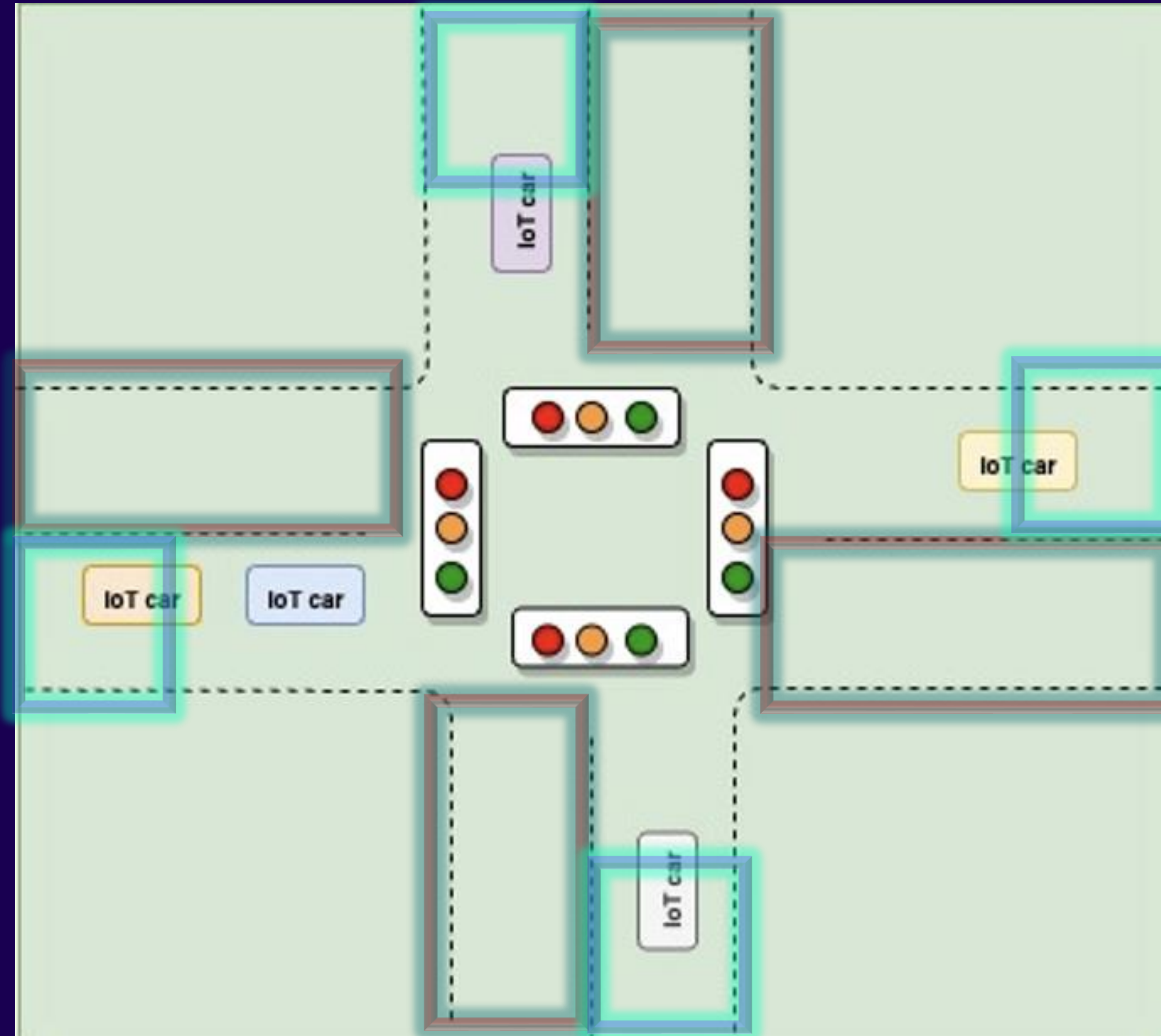


Under the hood – smart car

- 3D printed car body
- ESP32 microcontroller to equip the car with WiFi connectivity to interact with AWS IoT Greengrass core
- Motor driver chip to control the two motors



Track layout - zones



Demo video

Extensibility of this solution

This solution can be augmented with important features:

- Ability to detect accidents or crashes on the road
- Alerting the authorities or hospitals in vicinity
- Traffic statistics or dashboard for tracking

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Thank you!

