Smart Transportation

(Monitoring speed and Altering Speed Limit using OBD sensor)

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Objectives

- Read value from OBD II Scanner.

- If speed of vehicle cross a certain limit, trigger camera to capture the street view.

- Send an alert to the subscribed authority via MQTT broker.

- Publish New Speed Limit

- Visualisation of

    1. Distance Travelled
    2. Vehicle Speed Profile

Motivation/Applications

* Monitoring the status of the car == Driver + Passenger Safety

* Parent can dynamically change the speed limit of their children

* As a Black-box for logging events. Useful for insurance companies.

Hardware For The Project

1. Raspberry Pi 3
2. OBD II Sensor
3. Camera kit
4. Laptop to power up the Raspberry Pi 3
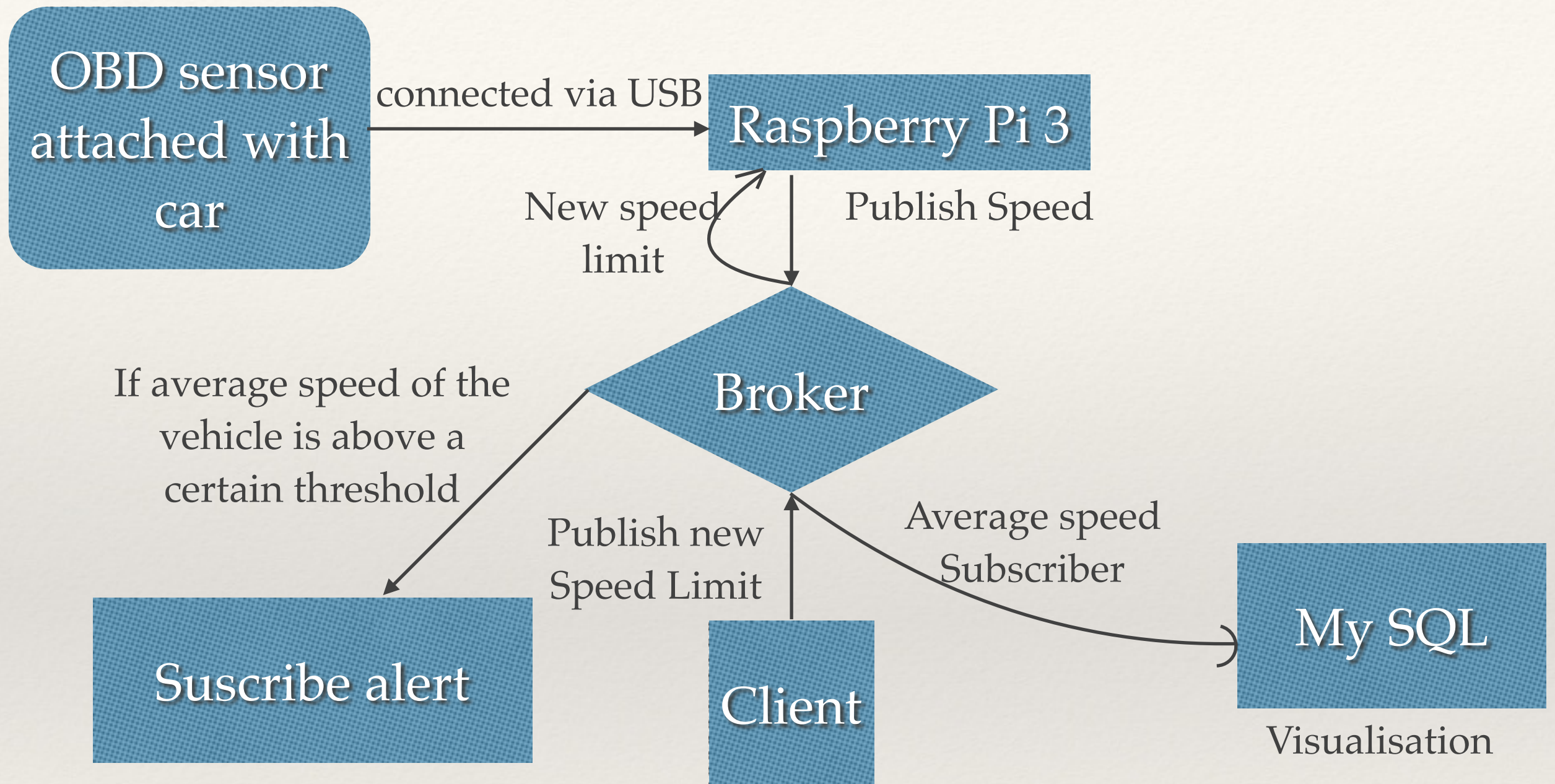
And of Course (AoC)

A CAR!!

OBD Sensor

- **On-board diagnostics** (**OBD**), refers to vehicle's self-diagnostic and reporting capability.
- A OBD systems give the vehicle owner or repair technician access to the status of the various vehicle subsystems.
- OBD implementations use a standardised digital communications port to provide real-time data which allow one to rapidly identify and remedy malfunctions within the vehicle.

Some of the parameters that can be extracted from OBD sensor are:
1. RPM
2. Vehicle Speed
3. Odometer reading
4. Throttle Position
5. O2 sensor

Architecture

OBD sensor attached with car

connected via USB

Raspberry Pi 3

New speed limit

Publish Speed

Broker

If average speed of the vehicle is above a certain threshold

Publish new Speed Limit

Average speed Subscriber

Suscribe alert

Client

My SQL

Visualisation

@PI

Publish Speed

@CLIENT

Publish New speed limit

ALERTS

Speed Limit Modified@PI