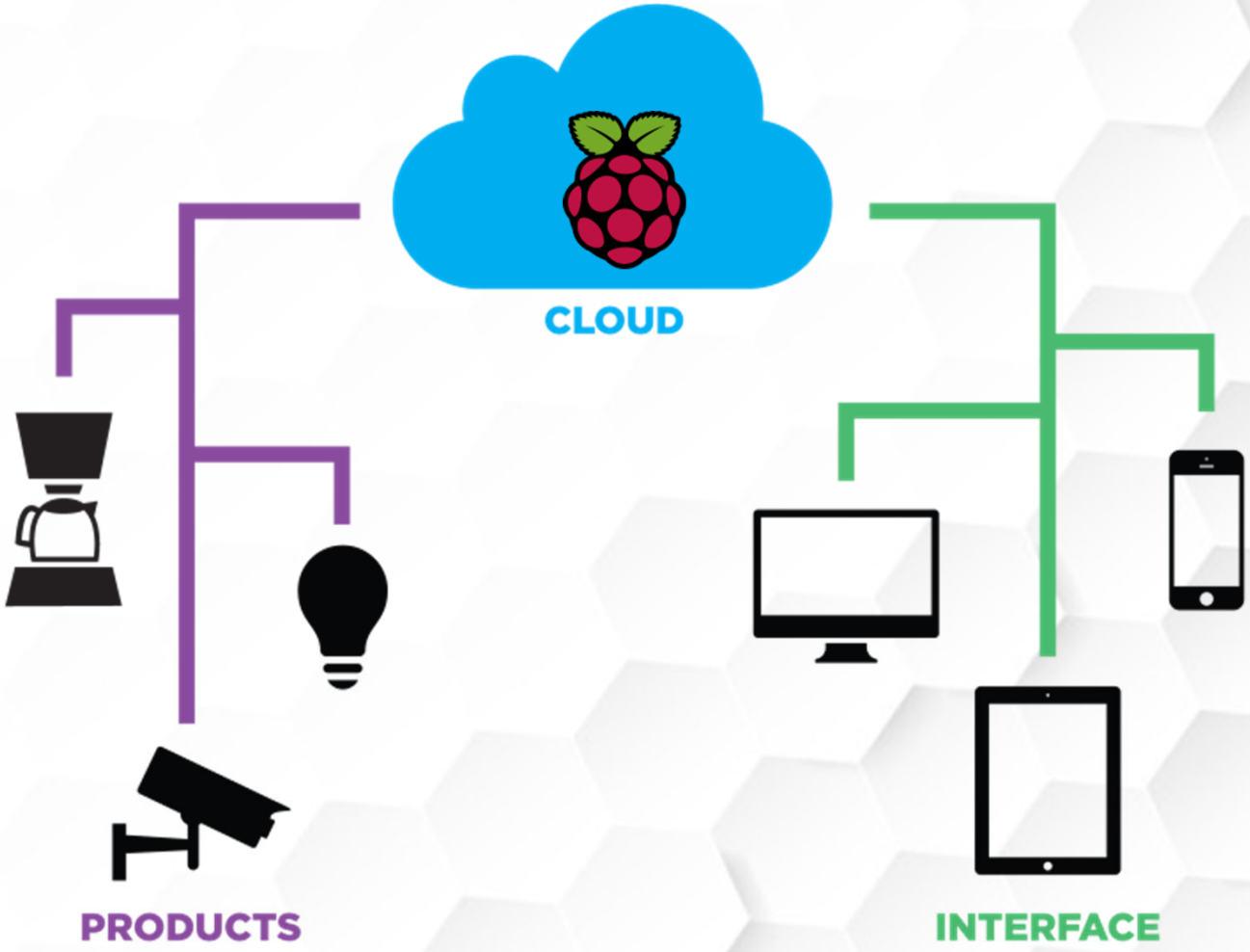
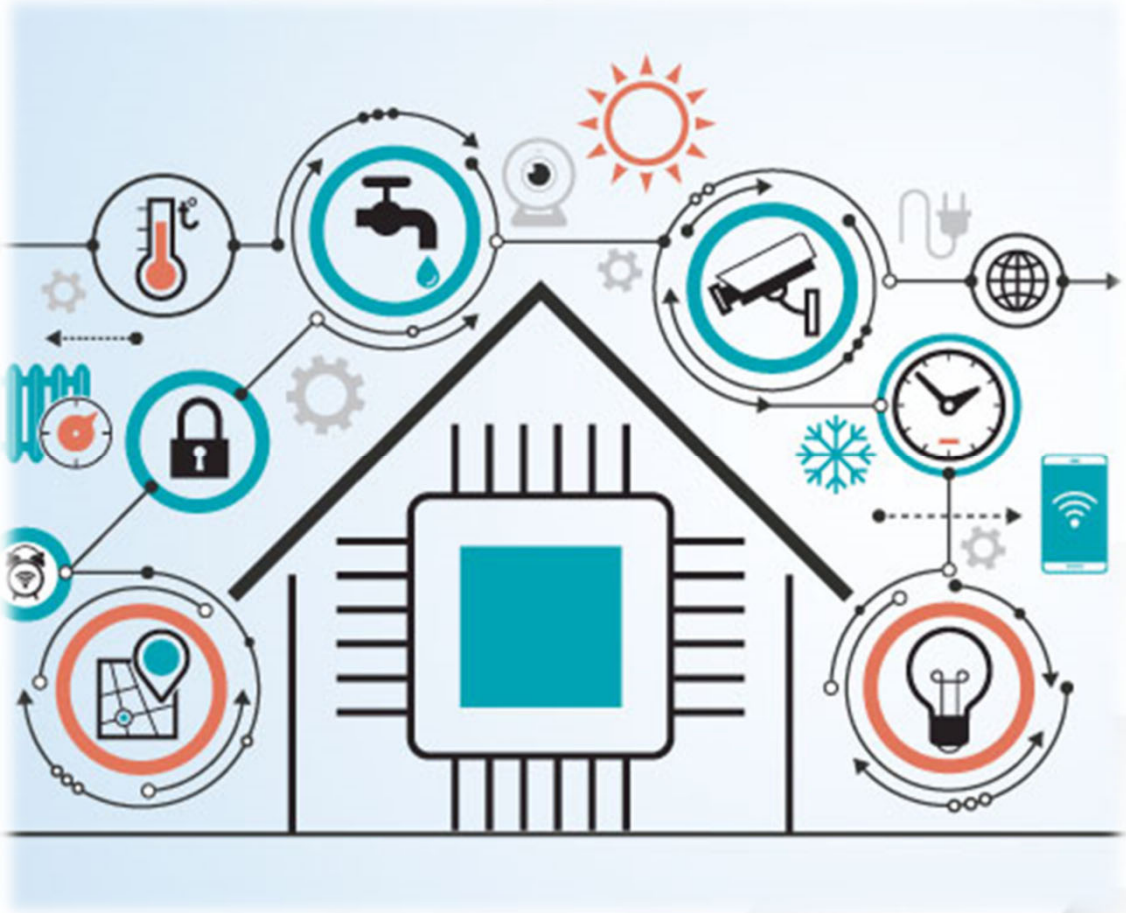
Smart Technology

Smart Home | IoT | Traffic control

IoT World (Internet of things)



IoT World (Internet of things)

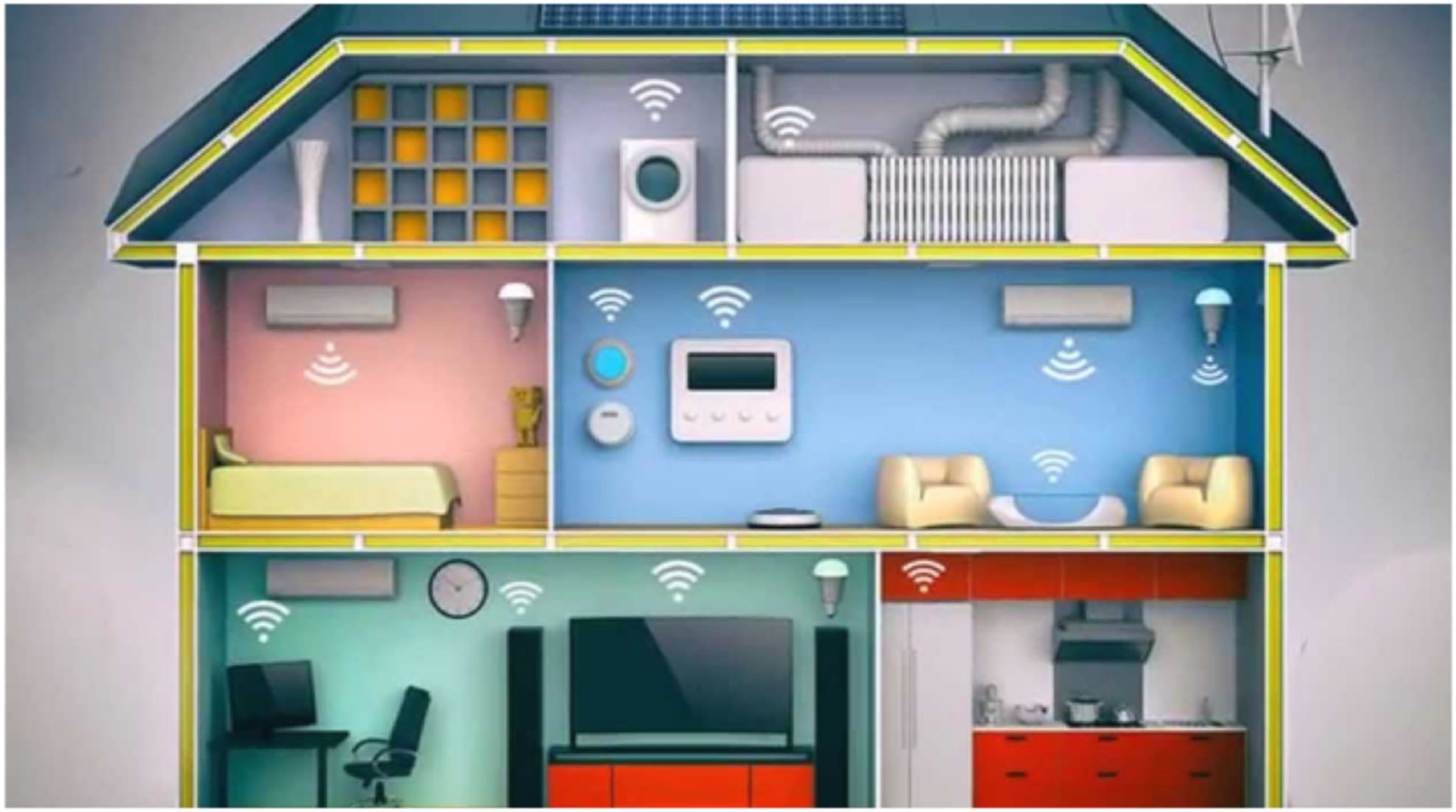


Easy

Fast

Secure

IoT World (Internet of things)



Data is transferred to the main system and synchronized with Client App

Big Data

Data could be used to train a neural network for further development of usage estimation and resource saving purposes

Security

1. Modern auth systems.

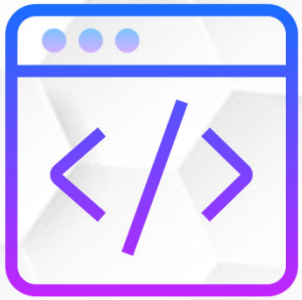
2. Data secure transfer and cryptography.

3. Pragmatic software and server setup.

User Interface and Client side

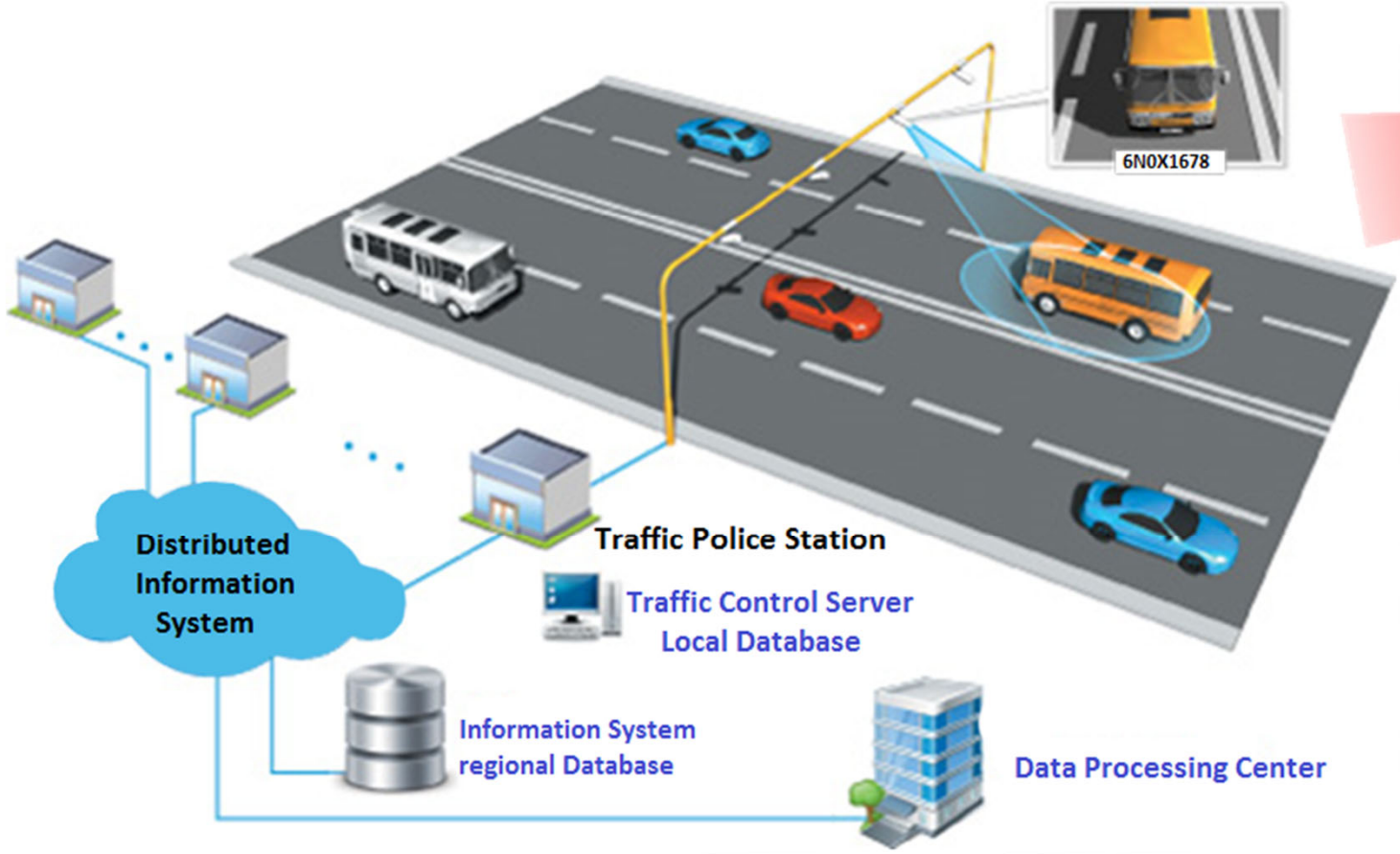
1. Mobile software

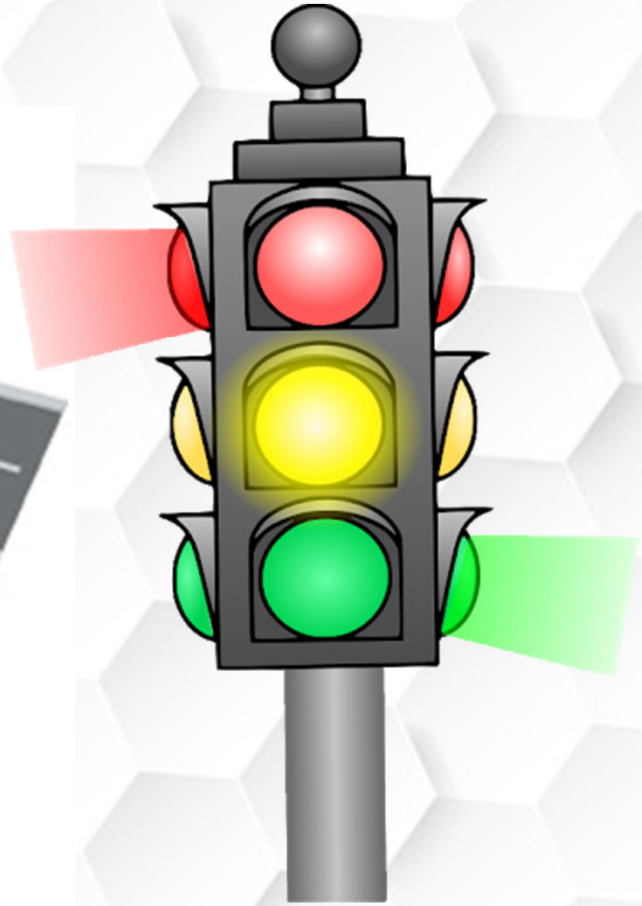
2. Additional smart gadgets software



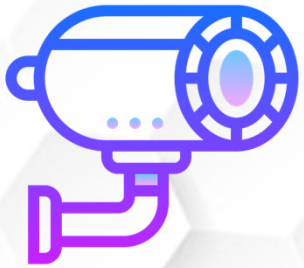
3. Voice assistant

Smart Traffic control





Aim



- Detect vehicles and read traffic information

- Make calculations and set favorable traffic light time

- Keep pedestrians and vehicles safe

My approach

OpenCV for data collecting

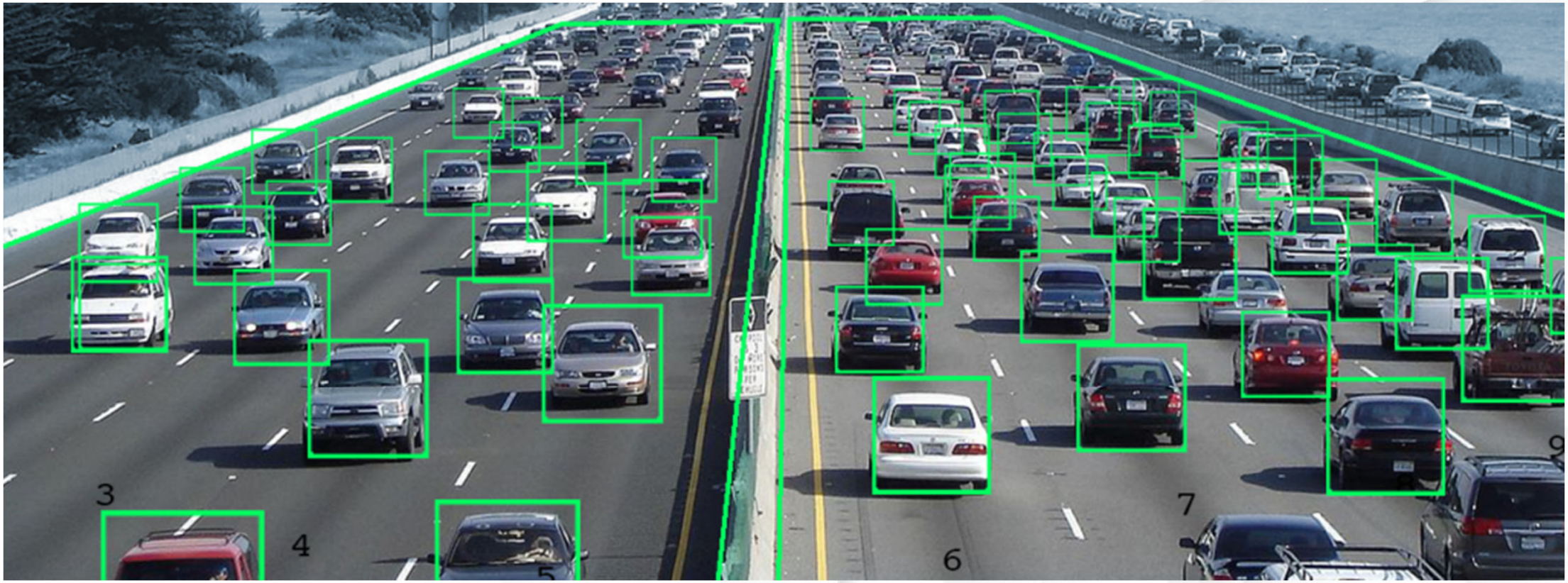
(open source computer vision library)

Python for data processing

(programming language)

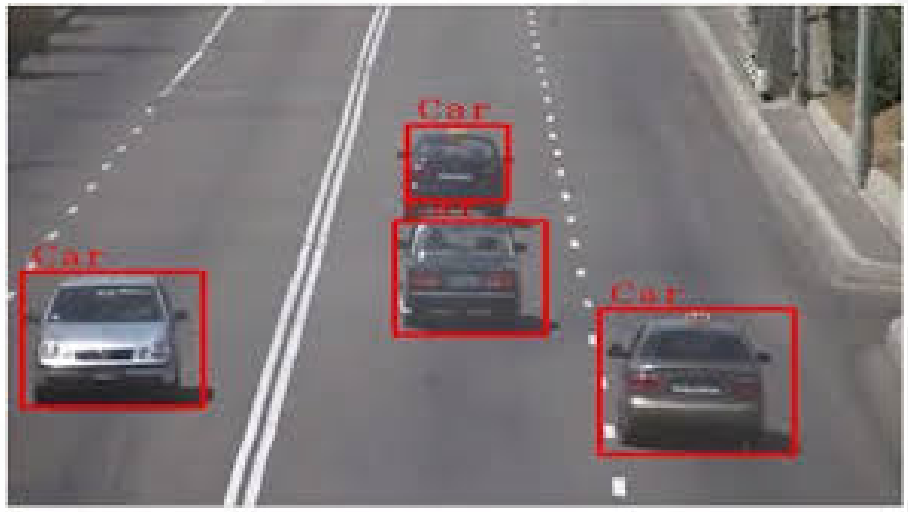
Theory

Theory
(Deep learning with cascade training)



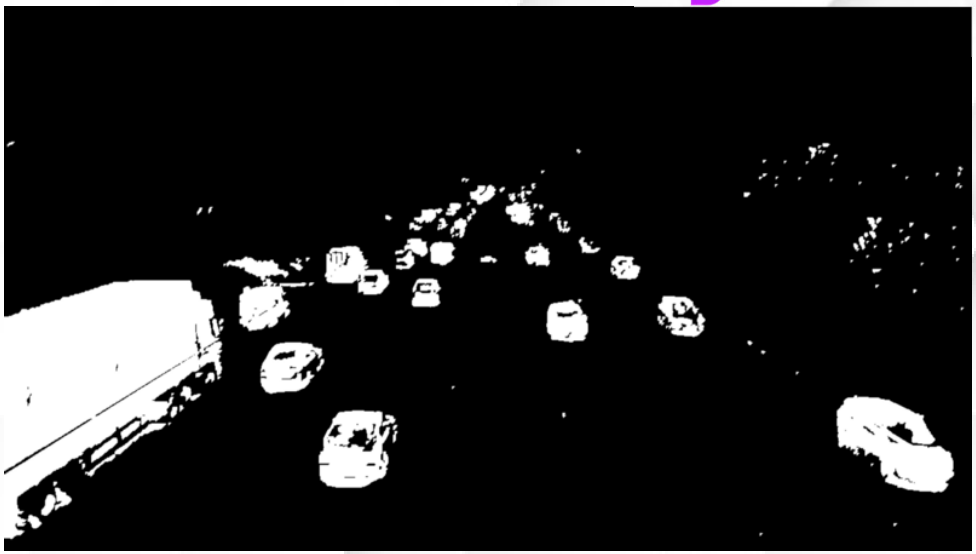
Theory (issues)

Easily detected



Too complex to detect

Theory
(Background subtraction)



Value: ~% of deviation
(Presence of different pixels after bytes subtraction)

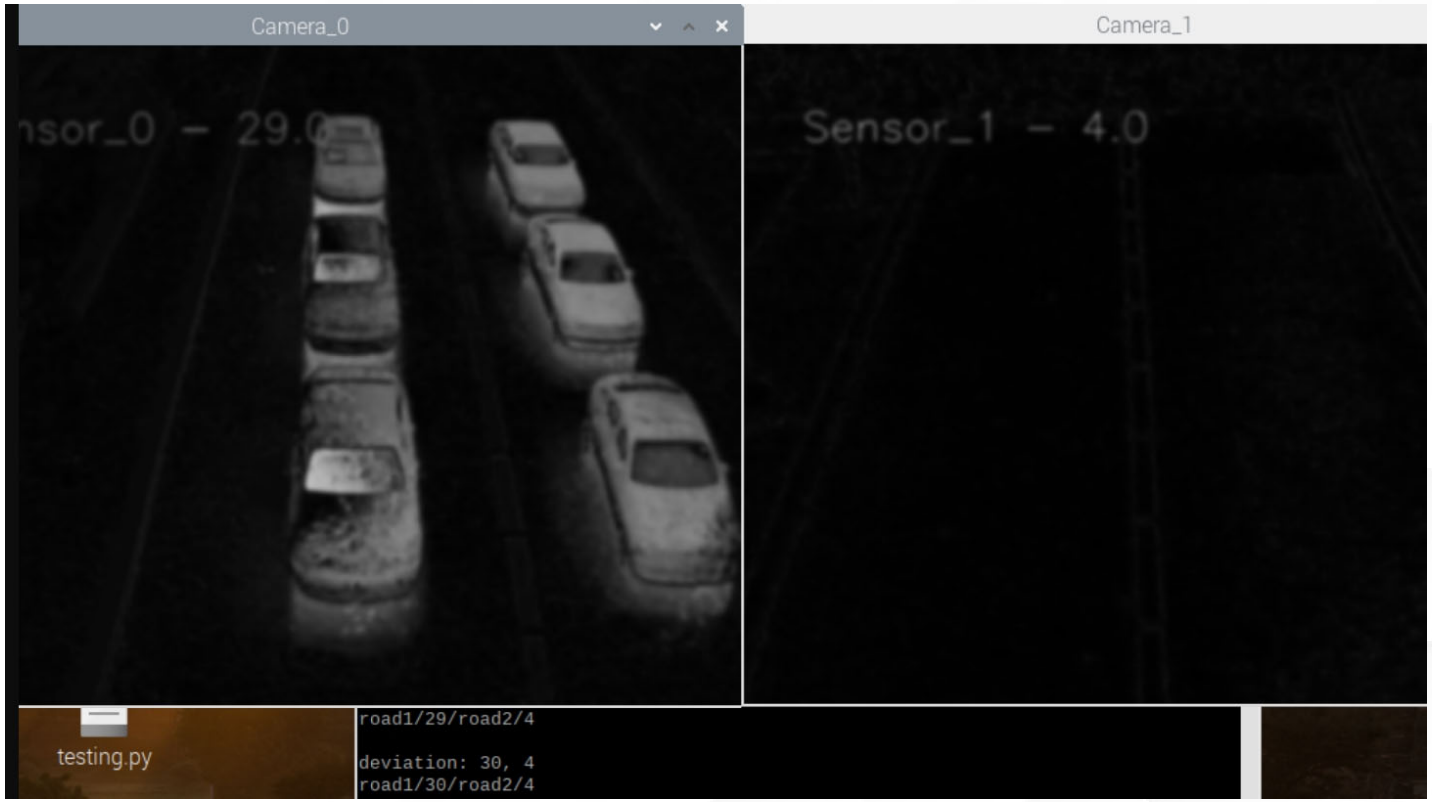
Prototype

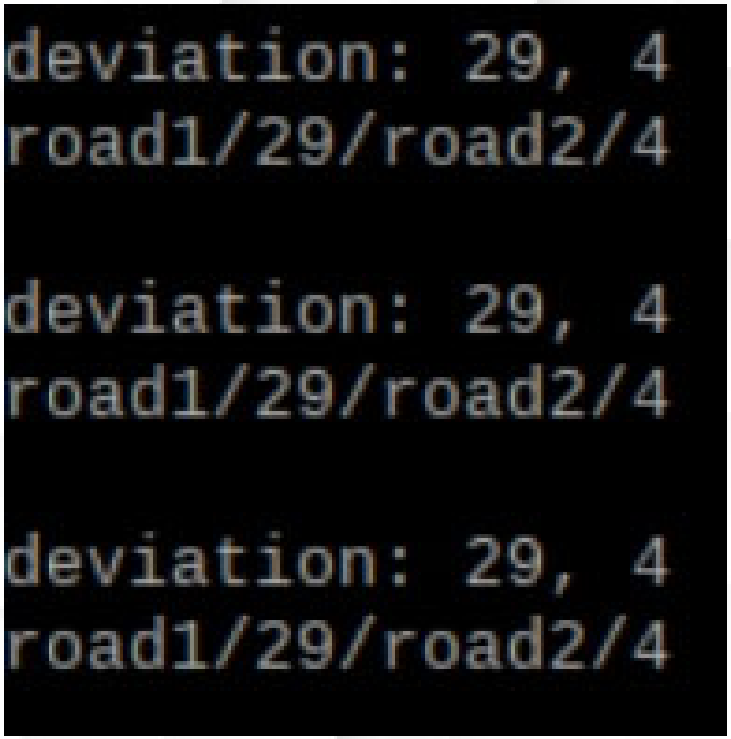
Prototype

Output

Camera_0
Camera_1
testing.py
callibration.. press c to continue
callibration.. press c to continue
callibration.. press c to continue

Output


Camera_0
Camera_1
Sensor_1 - 4.0
testing.py
road1/29/road2/4
deviation: 30, 4
road1/30/road2/4


deviation: 29, 4
road1/29/road2/4
deviation: 29, 4
road1/29/road2/4
deviation: 29, 4
road1/29/road2/4

Output

```
deviation: 31, 23
road1/31/road2/23

deviation: 31, 23
road1/31/road2/23

deviation: 31, 23
road1/31/road2/23
```

Further development

The next steps would be:

- improved recognition
- determination of the required recognition zone for a clearer analysis
- timely automatic calibrations

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