

Car Performance Monitoring

Car health is important nowadays . With the evolution of IoT car can be fitted with sensors to gather different information about Car's health and performance. Our solution will gather information from Car's sensors and store it in HarperDB (On edge itself) . The data stored can be used to analyse and provide user information via mobile app.

Problem

Car performance data is send back and forth over cloud to store making it mandatory to have connectivity . The whole notion of edge analytics is getting traction in which application uses the processing power of IoT devices to filter, pre-process, aggregate or score IoT data on edge itself

Three motivating factors for using Edge Computing

Data Privacy

Connectivity

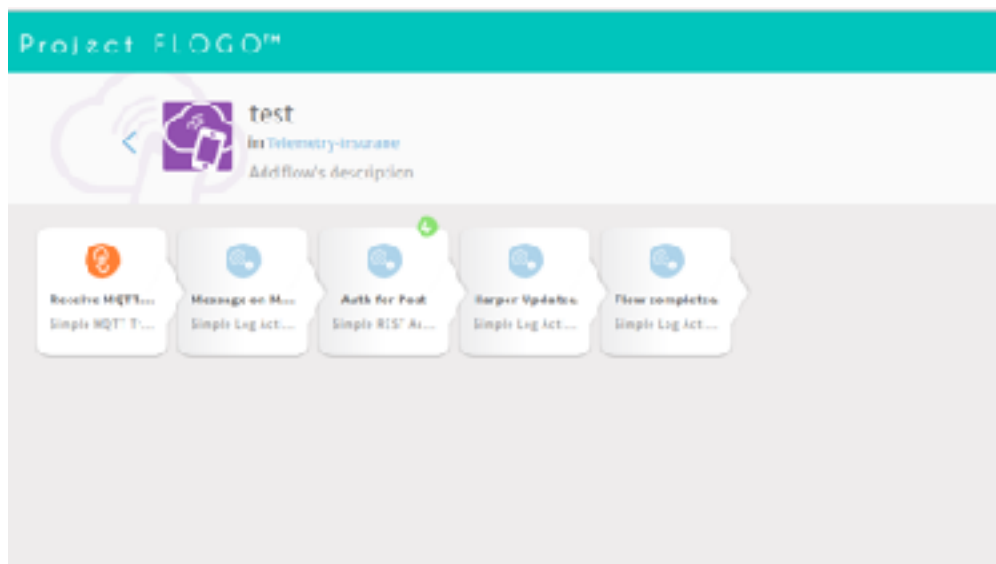
Latency

Solution

With the power of HarperDB data can be stored on edge devices itself and can be analysed on edge itself. We are proposing solution where data from sensors will be ingested over standard MQTT protocol and then stored into DB for advanced analytics which can be presented to user via Mobile app .

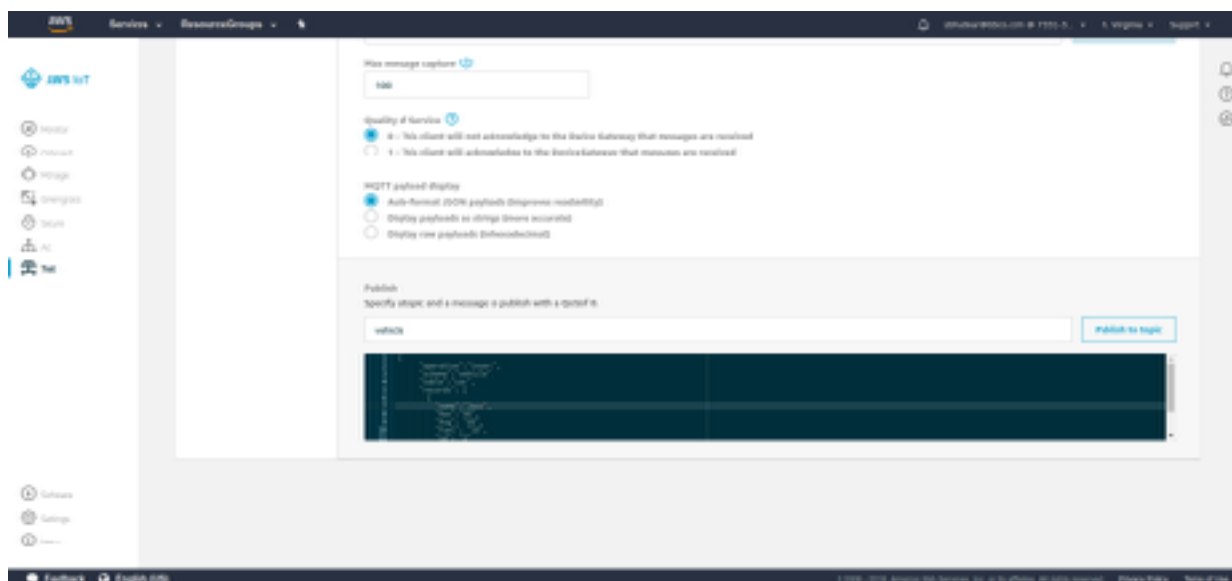
Technology used

1. Flogo : To build IoT integration flow. Flogo (<http://www.flogo.io/>) is an open source tool built by TIBCO software used to create lightweight IoT integration flows. All the logic can be visually coded with drag and drop facility. Our solution ingest data from MQTT and inserts in to HarperDB over REST .

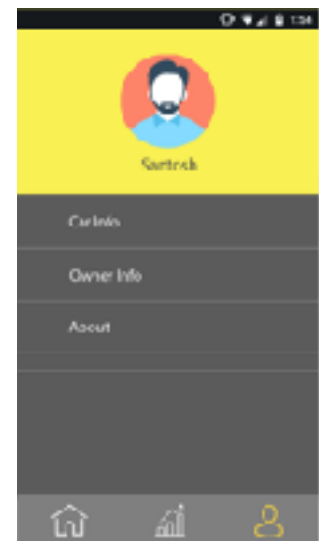
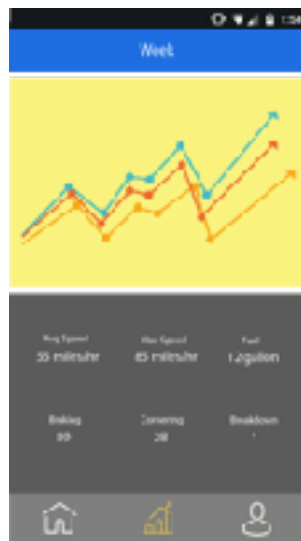
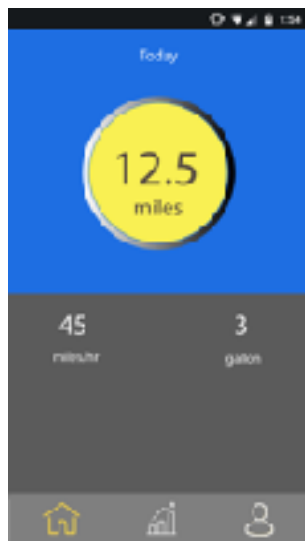


2. HarperDB : To store data coming from sensors
3. Raspberry pi : To run IoT flow and interfacing with sensors . The flow created with flugo can be built and run on Raspberry pi . Once the flow is running on device it can accept data coming over MQTT .

```
akash@akash-ThinkPad-P51:~/Work/HarperDB$ ./build
2018-02-07 18:43:37.009 INFO [engine] - Engine: Starting...
2018-02-07 18:43:37.010 INFO [engine] - Engine: Starting Services...
2018-02-07 18:43:37.010 INFO [engine] - Engine: Started Services
2018-02-07 18:43:39.628 INFO [engine] - Trigger [receive_mqtt_message] started
2018-02-07 18:43:39.628 INFO [engine] - Engine: Started
2018-02-07 18:43:42.745 INFO [engine] - In Flow Run url: 'test'
2018-02-07 18:43:42.746 INFO [engine] - FlowInstance Flow: 4{tibco-simple 0x855dc58 map[1:0x855dc58]}
2018-02-07 18:43:42.746 INFO [activity-tibco-log] - Message received on topic
2018-02-07 18:43:42.747 WARN [trigger-tibco-mqtt] - Invalid empty topic to publish to
2018-02-07 18:43:42.752 INFO [activity-tibco-log] - Database updated
2018-02-07 18:43:42.752 INFO [activity-tibco-log] - Flugo Flow completed
2018-02-07 18:43:42.752 INFO [engine] - Flow [1897e27768e5cb6ae9260d12cbc109db] Completed
2018-02-07 18:43:42.759 INFO [engine] - In Flow Run url: 'test'
2018-02-07 18:44:24.039 INFO [engine] - FlowInstance Flow: 4{tibco-simple 0x855dc58 map[1:0x855dc58]}
2018-02-07 18:44:24.040 INFO [activity-tibco-log] - Message received on topic
2018-02-07 18:44:24.040 WARN [trigger-tibco-mqtt] - Invalid empty topic to publish to
2018-02-07 18:44:24.044 INFO [activity-tibco-log] - Database updated
2018-02-07 18:44:24.044 INFO [activity-tibco-log] - Flugo Flow completed
2018-02-07 18:44:24.044 INFO [engine] - Flow [1897e27768e5cb6ae9260d12cbc109db] Completed
2018-02-07 18:44:24.044 INFO [engine] - In Flow Run url: 'test'
2018-02-07 18:46:34.741 INFO [engine] - FlowInstance Flow: 4{tibco-simple 0x855dc58 map[1:0x855dc58]}
2018-02-07 18:46:34.741 INFO [activity-tibco-log] - Message received on topic
2018-02-07 18:46:34.741 WARN [trigger-tibco-mqtt] - Invalid empty topic to publish to
2018-02-07 18:46:34.750 INFO [activity-tibco-log] - Database updated
2018-02-07 18:46:34.750 INFO [activity-tibco-log] - Flugo Flow completed
2018-02-07 18:46:34.750 INFO [engine] - Flow [1897e27768e5cb6ae9260d12cbc109db] Completed
```



Application



Future scope

- This application can be useful to find out Car health and performance . This can be extended to provide predictive maintenance updates about car to user
- Telematics insurance sometimes called black box insurance, pay-as-you-drive or pay-how-you-drive insurance - is a rapidly growing area of the industry that's revolutionising the way we think about car insurance. App can be extended to predict Insurance premiums to user.
- HarperDB can be used with different telematics device providers for storing data on edge.