Sense & **Sensor**ability

ASET Colloquium, 13th Dec, 2019

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Meetasha Rathi

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1.35 million

Road traffic deaths occur every year

3,287

Deaths everyday on average

3% of GDP

Cost of road traffic crashes

Source: https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries

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- *Vision : to create better driving experience, improve road safety and reduce pollution.*

Sensor

The present

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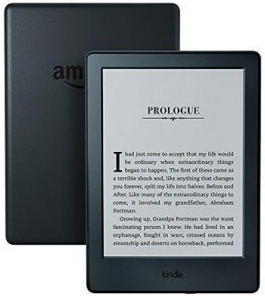
Smartphones have replaced…



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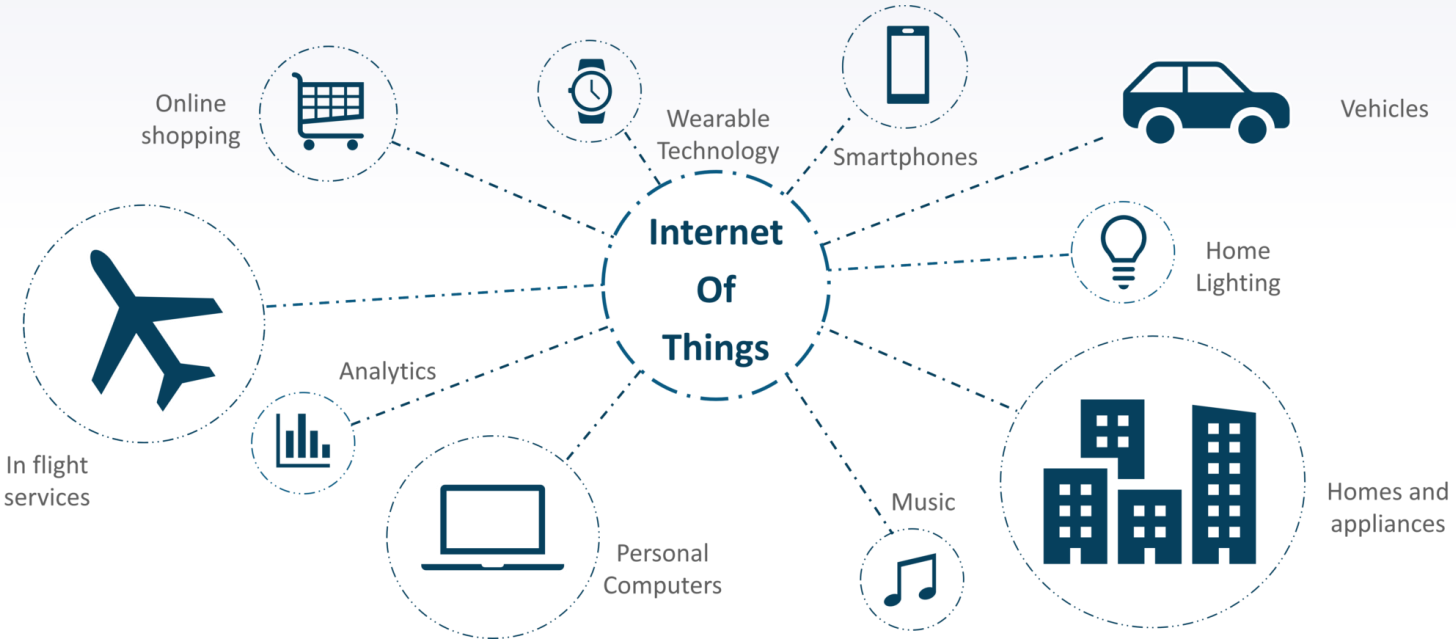
What is IoT?



Source: https://medium.com/edureka/iot-applications-c62cd48b7363

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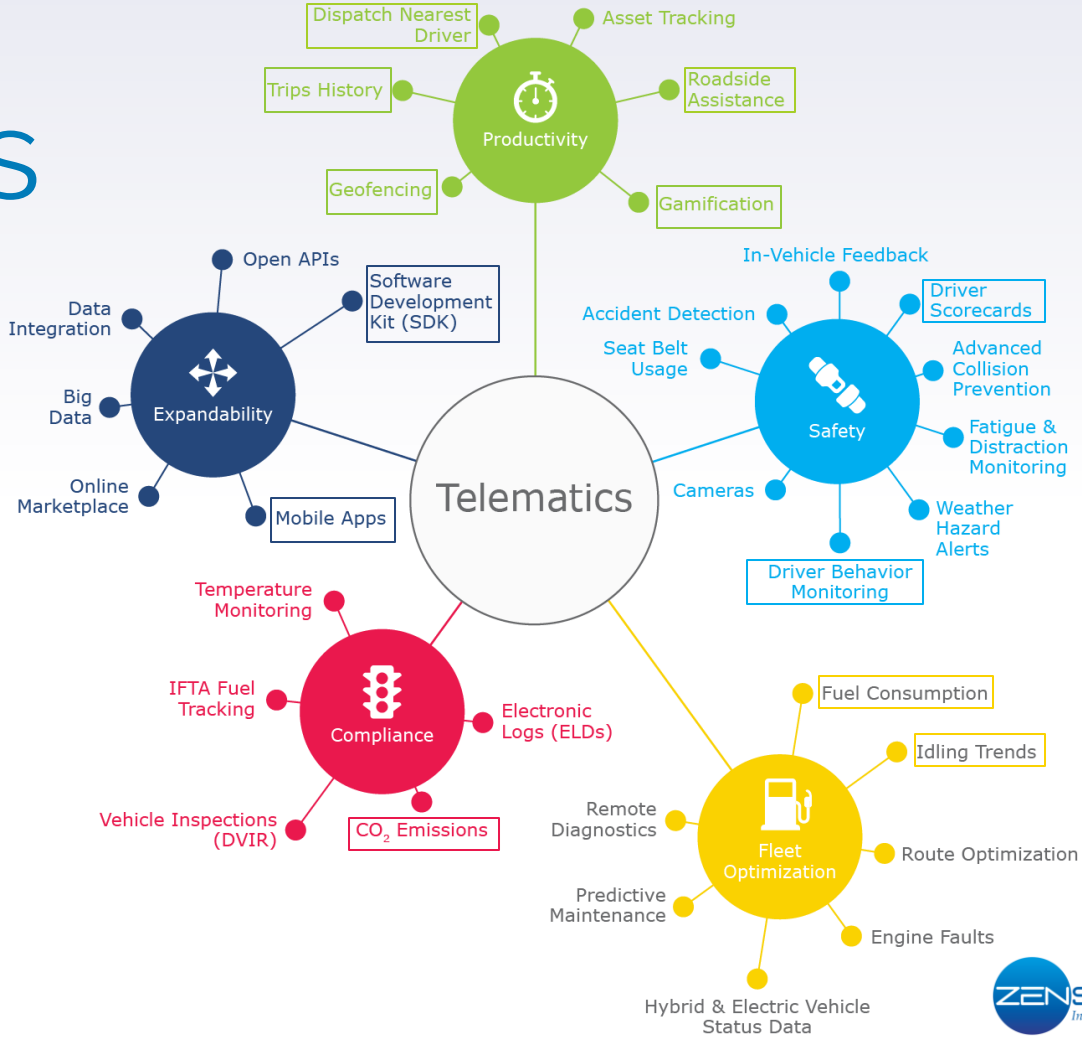
“What the Internet of Things is really about is information technology that can gather its own information. Often what it does with that information is not tell a human being something, it [just] does something.”

— Kevin Ashton

Technology Pioneer, MIT

Telematics



Source: https://www.geotab.com/blog/what-is-telematics/

Our Use Cases

Auto insurance

Fleet management

Competitions

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OBD Vs Smartphones

- Installation
- Cost
- Availability
- Phone usage detection
- Data Sanity

Source: https://blog.automile.com/myth-obd-ii-devices-void-warranty/
https://www.androidcentral.com/android-auto

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GPS Sensor

- Fitted in devices
- Provides parameters:
  - Latitude
  - Longitude
  - Speed
  - Heading

Source: https://electricalfundablog.com/global-positioning-system-gps/

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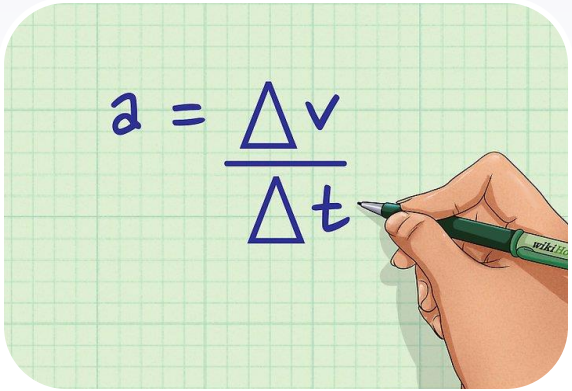
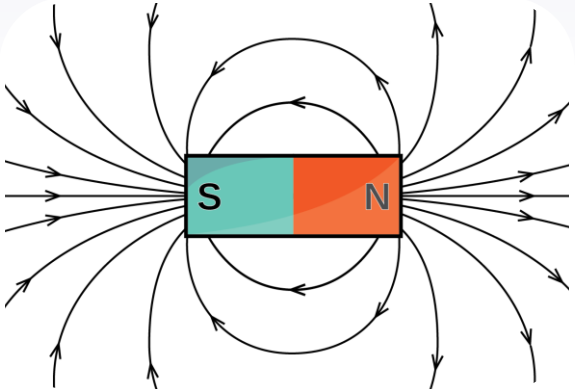
Sensors



Accelerometer

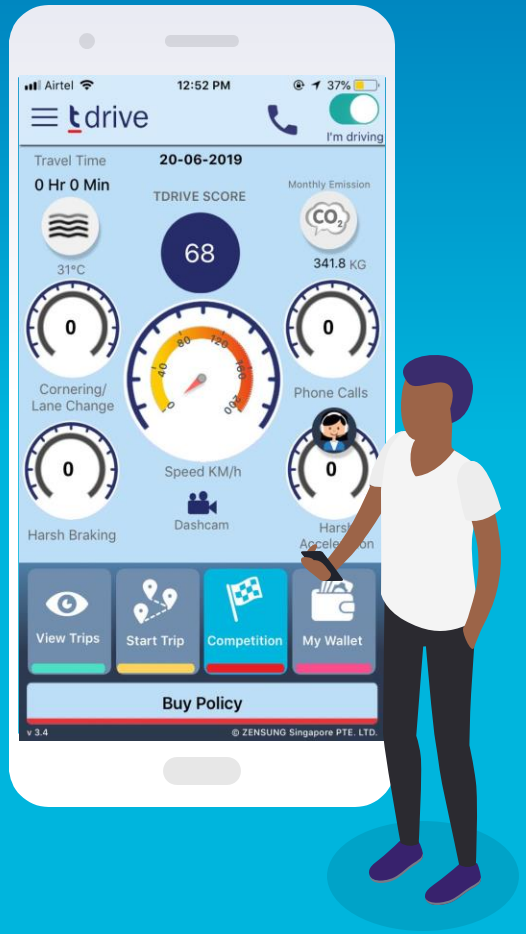
Gyroscope



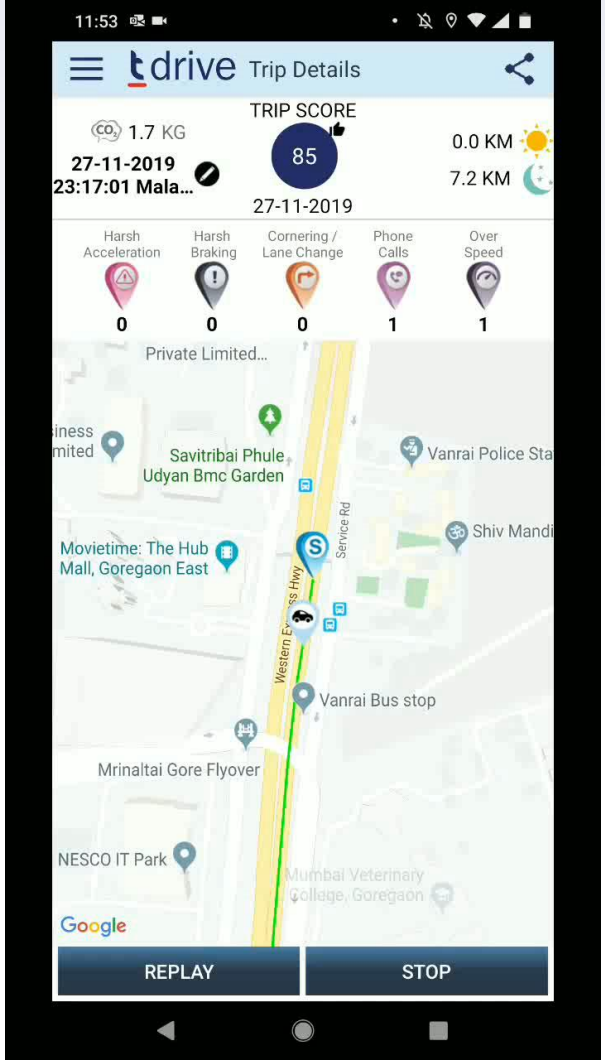
Magnetometer

tDrive App

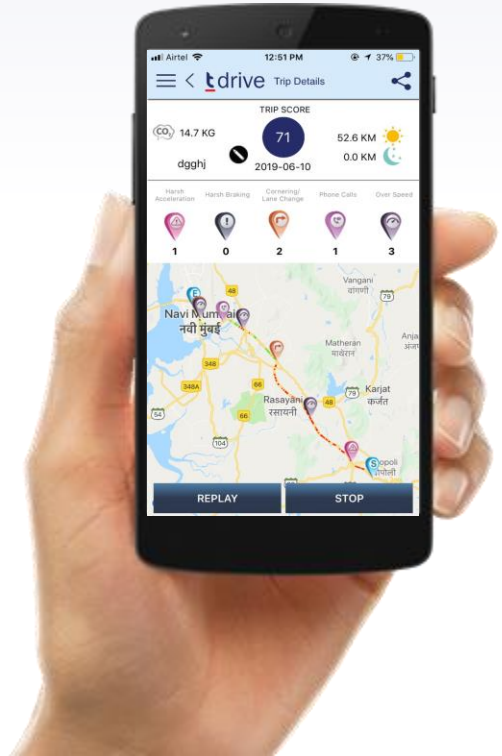
App collects sensor data which it uses to analyse driving patterns of the user



tDrive App features

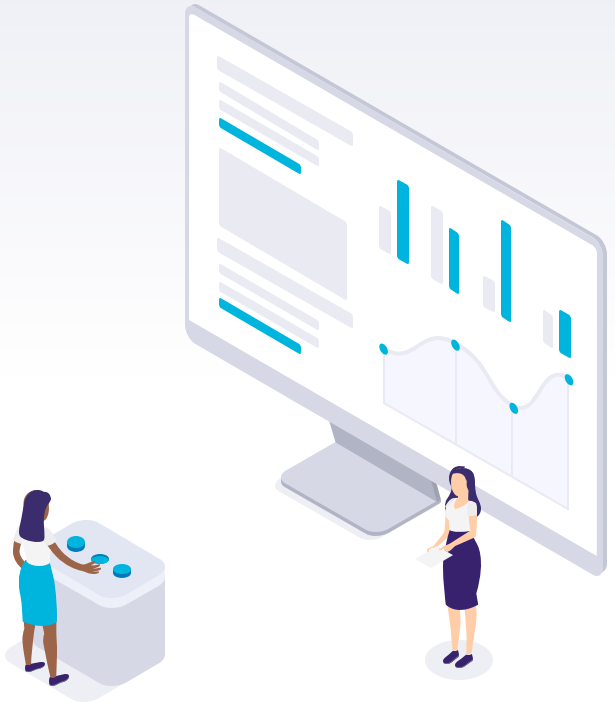


Driving Skills Analysis



Sensorability

The road ahead



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Telematics Policies & IoT

- Pay How You Drive

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Sensor & IoT

High and continuous volume

Raw dirty data

Managing time-series data

Bi-directional communication

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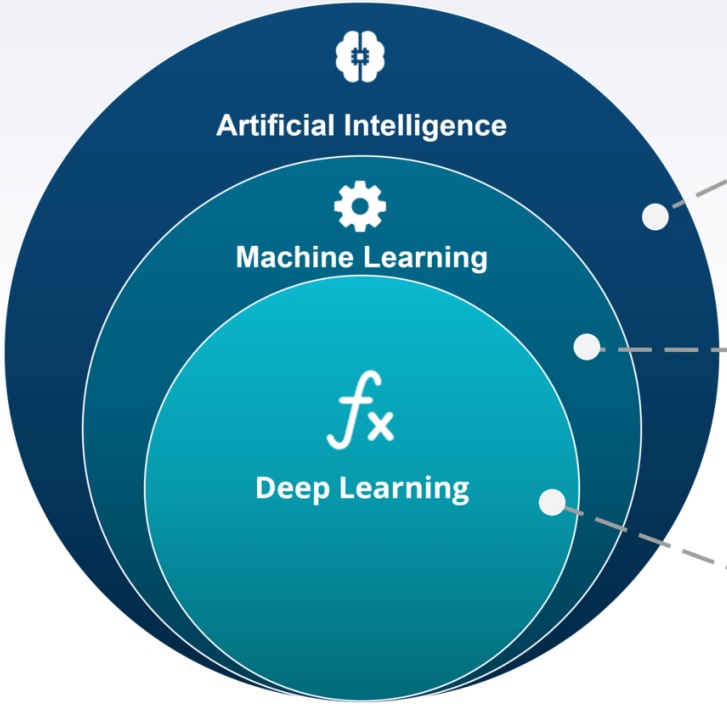

ARTIFICIAL INTELLIGENCE

A technique which enables machines to mimic human behaviour

MACHINE LEARNING

Subset of AI technique which use statistical methods to enable machines to improve with experience

DEEP LEARNING

Subset of ML which make the computation of multi-layer neural network feasible

Source: https://towardsdatascience.com/deepfakes-an-unknown-and-uncharted-legal-landscape-faec3b092eaf

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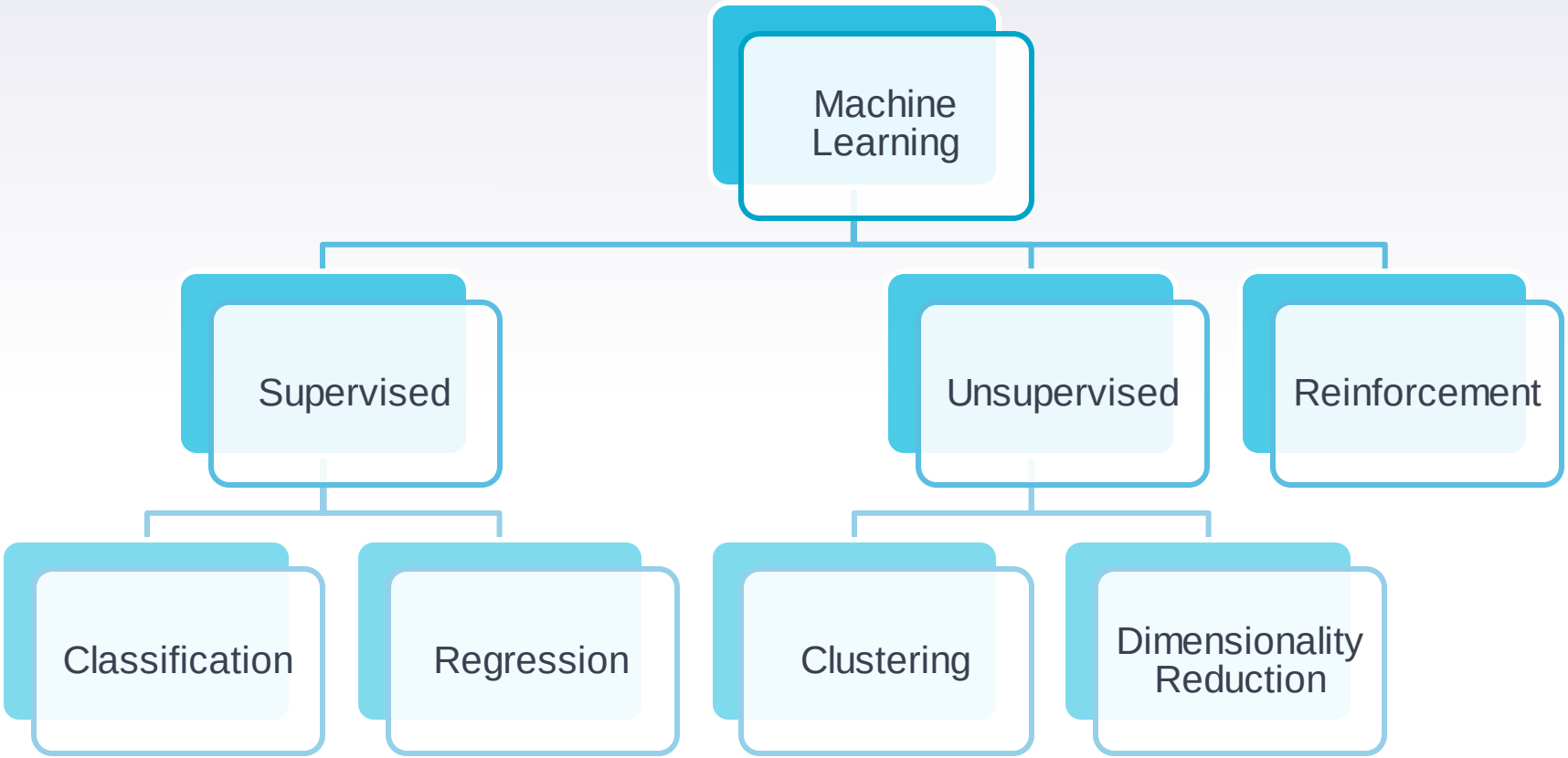
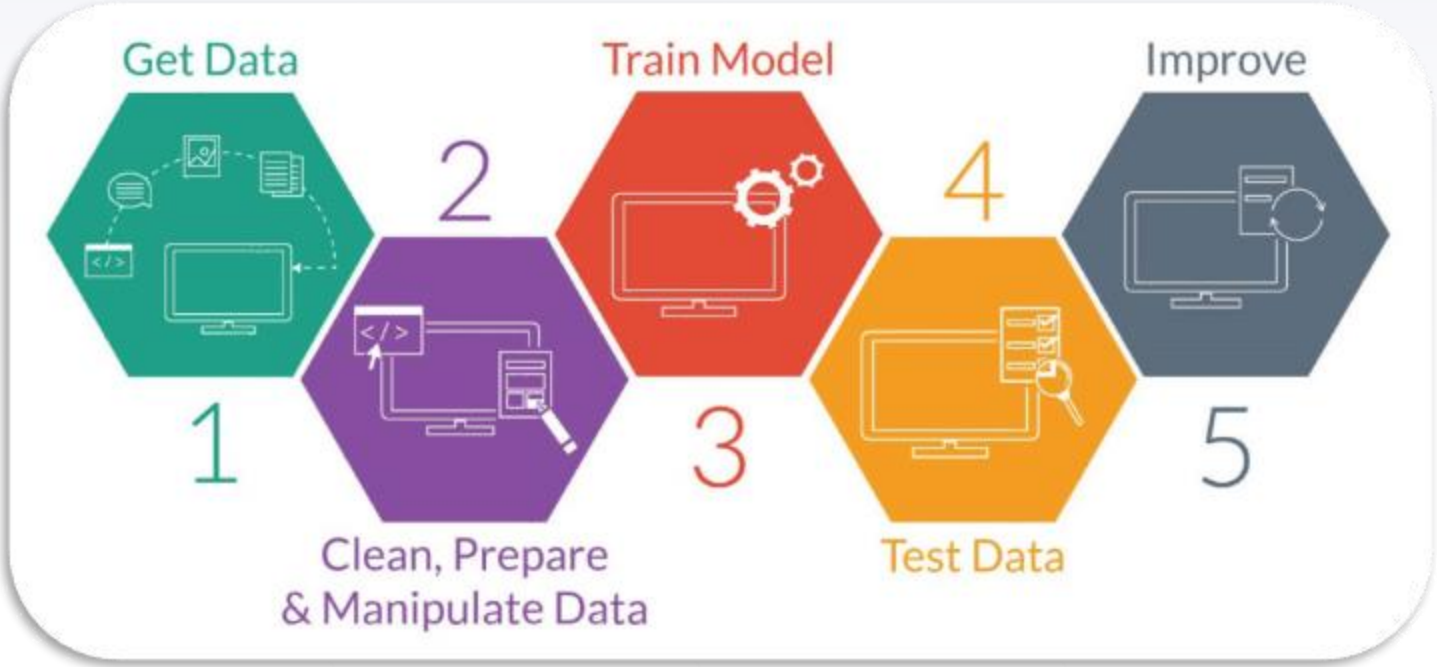


Analytics Workflow



Identification of Mode of Transport

Objective To identify the mode of transport and thereby consider only those trips which are in car

Data: Sensor data

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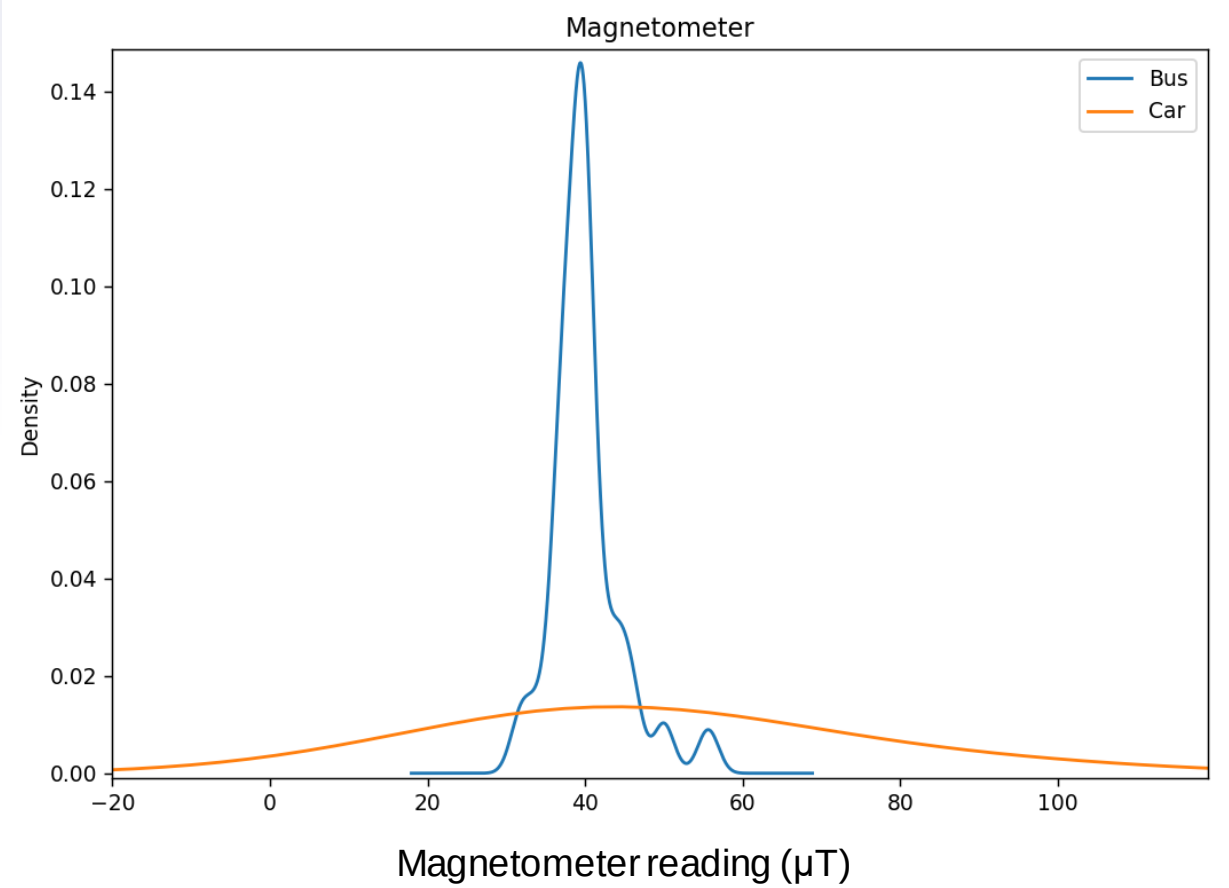
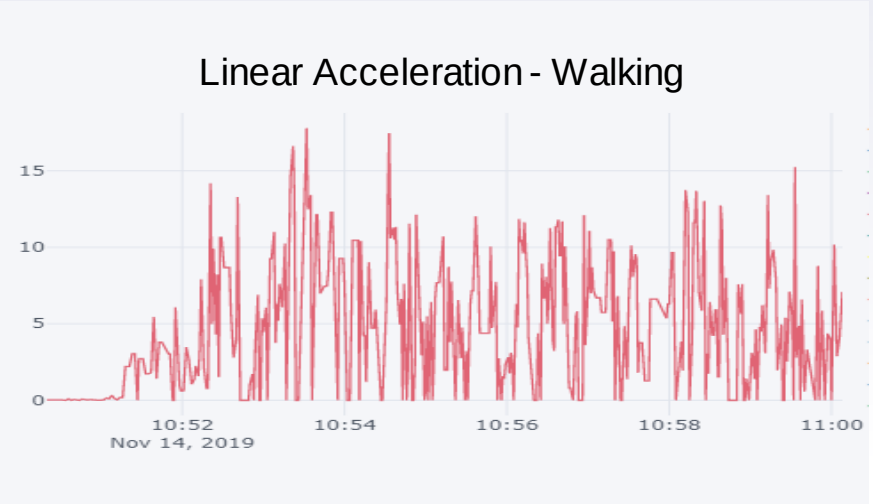
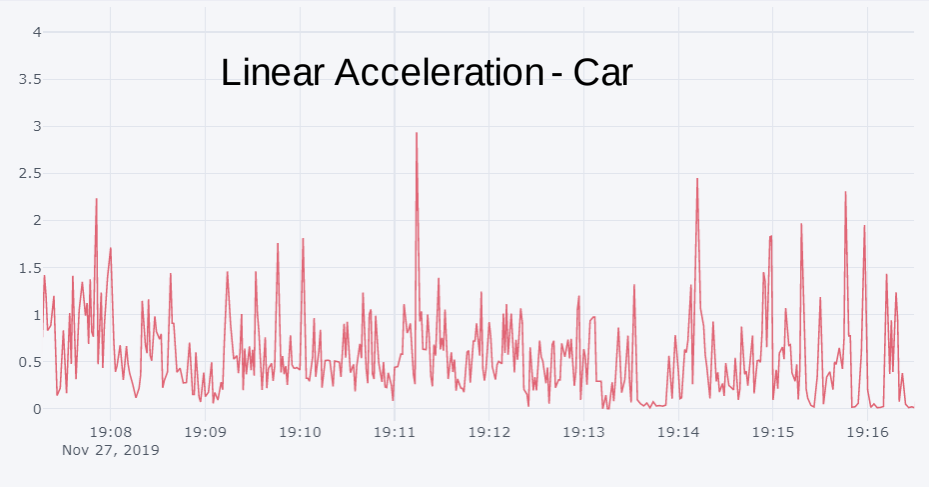
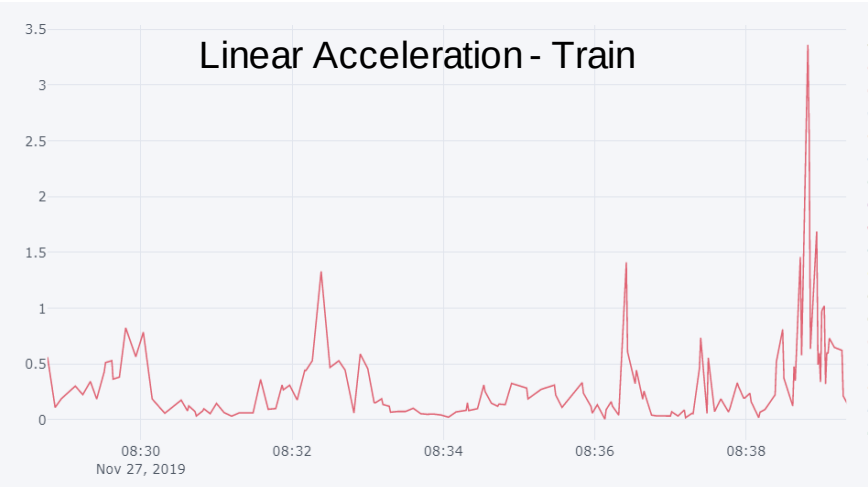
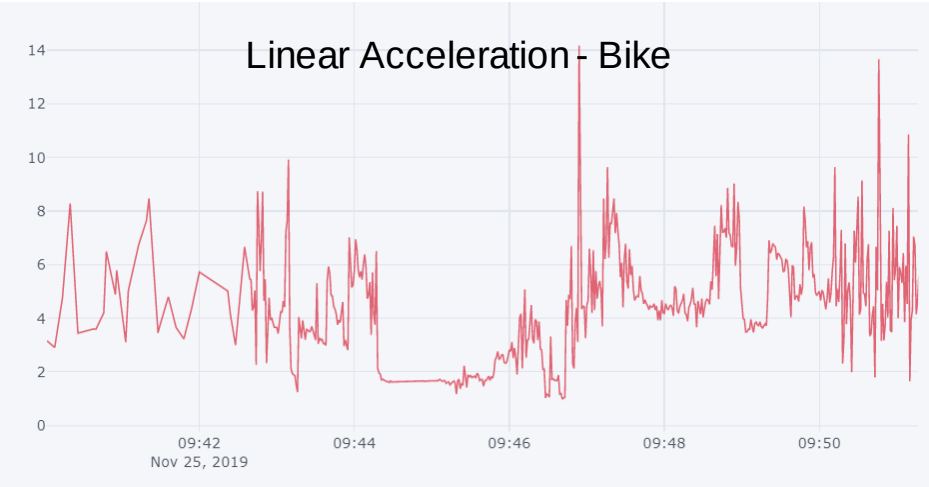
Magnetometer Density Plot



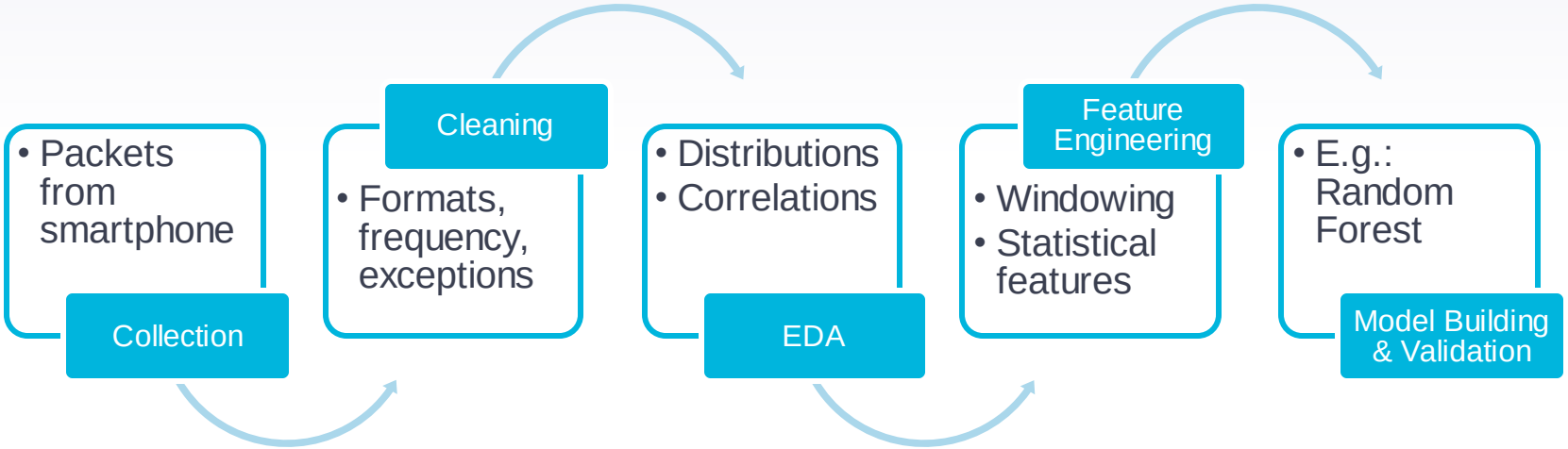

Linear Acceleration - Walking
15
10
5
0
10:52
Nov 14, 2019
10:54
10:56
10:58
11:00


Linear Acceleration - Car
4
3.5
3
2.5
2
1.5
1
0.5
0
19:08
Nov 27, 2019
19:09
19:10
19:11
19:12
19:13
19:14
19:15
19:16


Linear Acceleration - Train
3.5
3
2.5
2
1.5
1
0.5
0
08:30
Nov 27, 2019
08:32
08:34
08:36
08:38


Linear Acceleration - Bike
14
12
10
8
6
4
2
0
09:42
Nov 25, 2019
09:44
09:46
09:48
09:50

Methodology



Driver vs Passenger Identification

Objective: : Identify and consider only those car trips where the user has been the driver

Data: Sensor

Methodology: Supervised ML (Classification Algorithm)

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Driving pattern Analysis

Objective: To analyse driving patterns of individuals and alert in case of deviation from norm

Data: Sensor and GPS data

Methodology: Anomaly detection algorithms

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Insurance Product Recommendation

Objective: Adequate coverage

Data: User profile and claims data

Methodology : Recommendation Engine

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THANKS!

Any questions?

You can also reach us at:

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- meetasha@zensung.com

"Your insurance provides coverage for catastrophic events — but a bad haircut doesn't qualify."

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