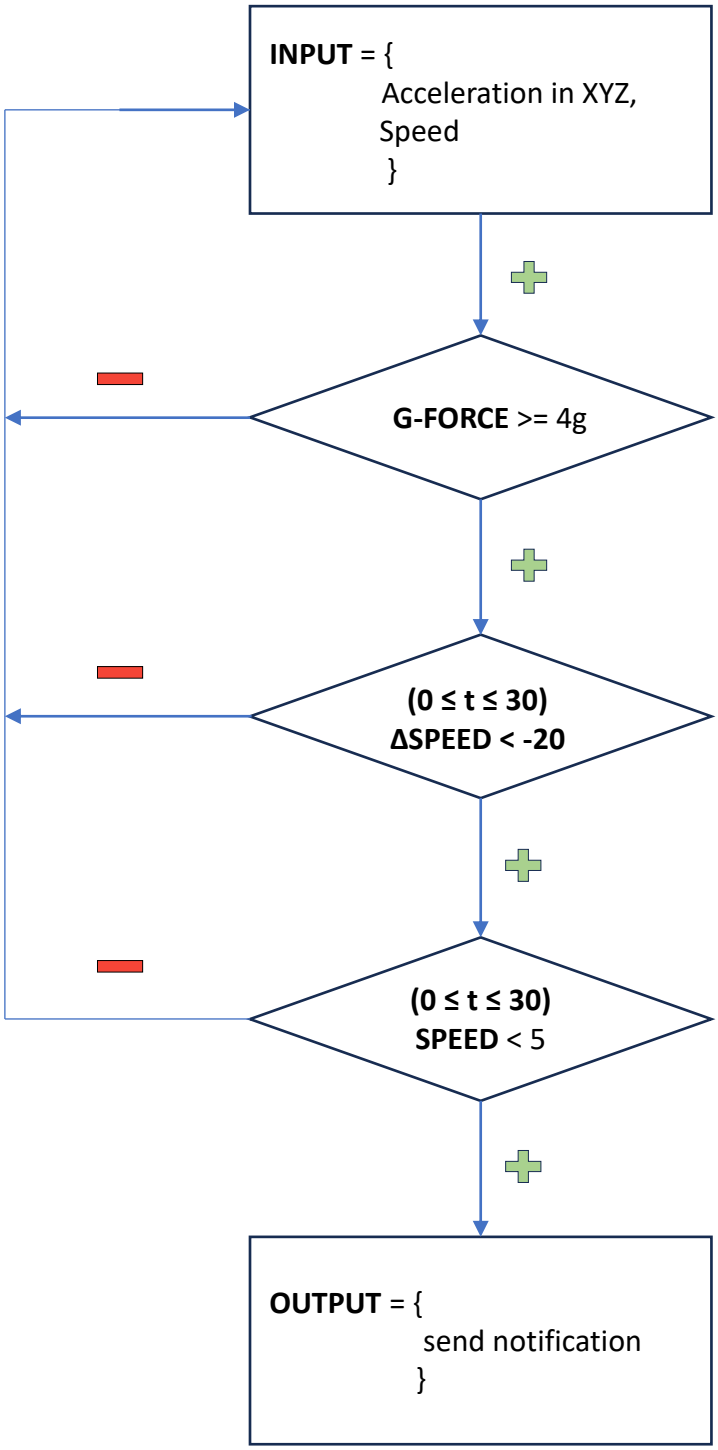
CRASH ERROR NEGLECT ALGORITHM

A set of rules to detect the perfect crash and to neglect the noises being detected



$$g = \frac{\sqrt{{a_x}^2 + {a_y}^2 + {a_z}^2}}{9.81}$$

DISCLAIMER

ONLY A SAMPLE ALGORITHM TO NEGLECT ERROR DETECTION. TO BE TESTED IF IT WORKS FINE.

STEP 1

- The algorithm takes **Three dimensional acceleration** and **Speed** as input

STEP 2

- **g** is calculated 20 times for every second
- A threshold of **4g** is set
- Algorithm checks if the calculated **g** crosses the threshold

$$g = \frac{\sqrt{{a_x}^2 + {a_y}^2 + {a_z}^2}}{9.81}$$

STEP 3

- Whenever calculated **g** crosses the threshold of **4g,** now to confirm vehicle is not moving, in next 30sec algorithm calculates **ΔSPEED** 20 times for every second
- If ΔSPEED > -20, then vehicle may not be under any impact
- If ΔSPEED < -20, then there may be a chance vehicle is under an impact

NOTE

- If next bump in **g** value happens within 30 sec, where **g > 4** then from that instant next 30 sec is taken

STEP 4

- Now to confirm if the vehicle is under an impact, **SPEED** of the vehicle is checked using the data in the same **30sec** where **ΔSPEED** is calculated
- If **SPEED ≮ 5**, then vehicle is not under any impact
- If **SPEED < 5**, then vehicle must be under an impact according to our algorithm

STEP 5

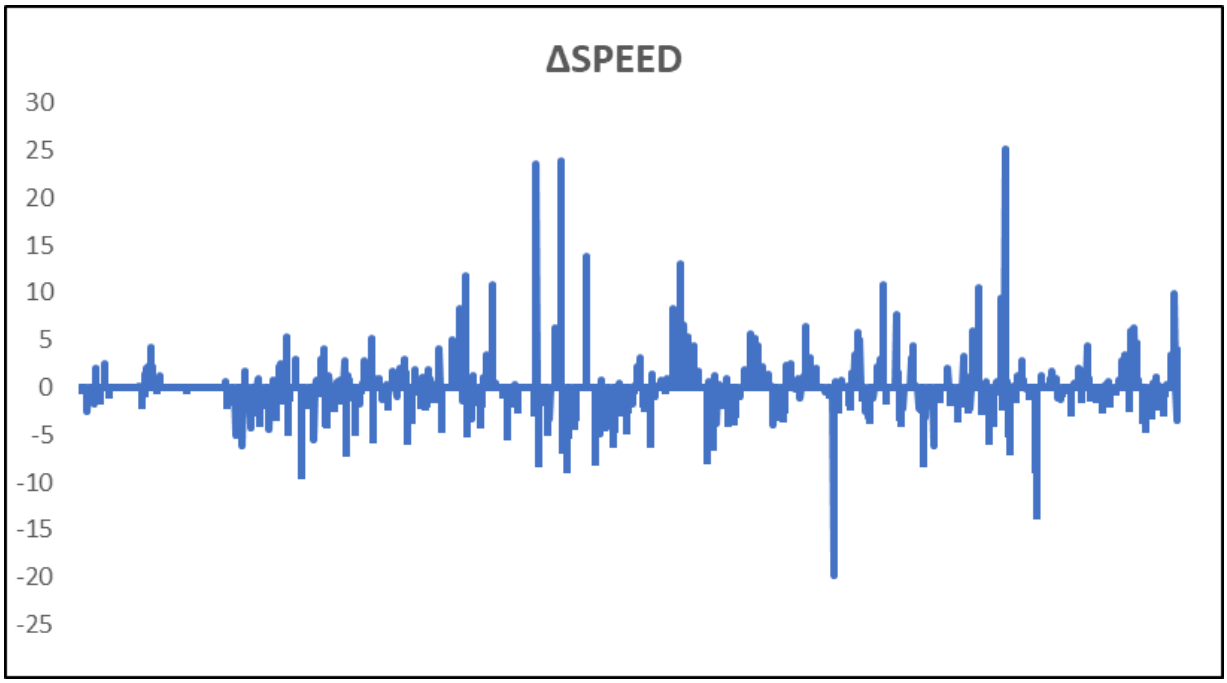
- Notification is sent

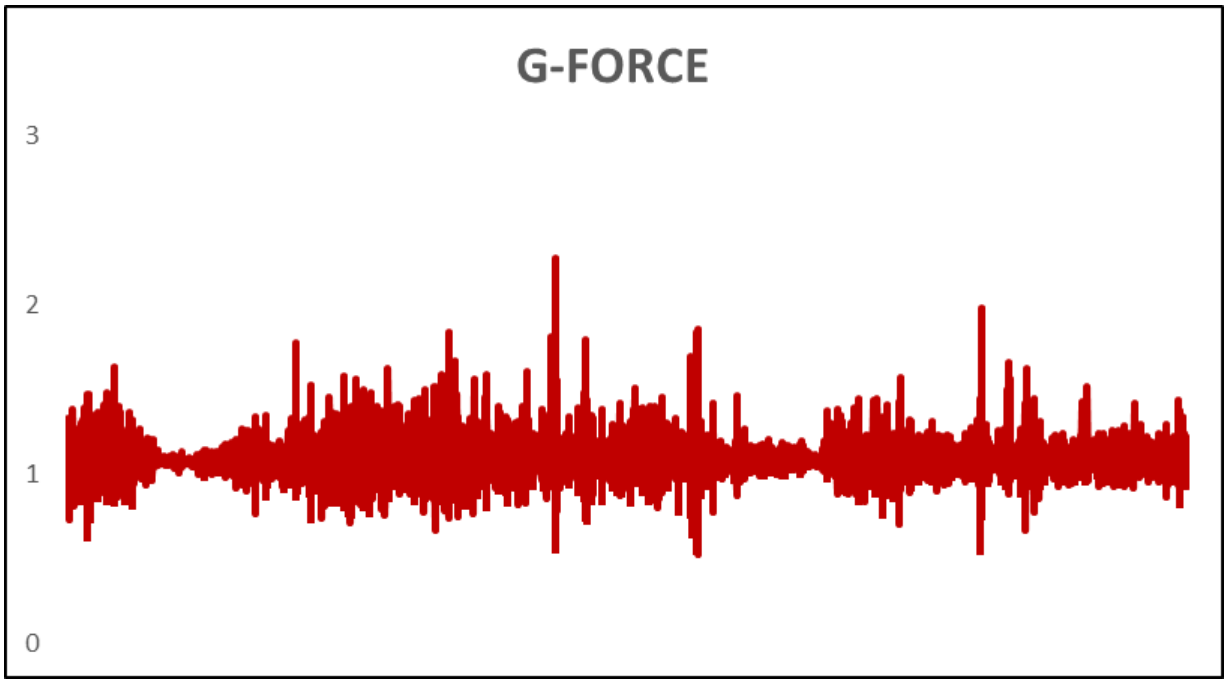
SAMPLE RIDE

Ride Number : 1131

Credentials : 8012120228

Password : User@123





POSSIBLE IMPROVEMENTS IN FUTURE

- As soon as calculated **g** crosses the threshold, Microphone can be turned on and start to record the ambient sound for next **30sec**
- Later can be machine learned and detect if accident has really happened using audio signal processing etc or can be manually checked