Status Report:

Accident Detection And Notification System

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Overall Progress

- Configured and checked compatibility of the accelerometer with R-pi.
- Set up AWS CLI on R-Pi and added particular device to cloud and authenticated with AWS keys and certificates.
- Measured acceleration with sensor and made a custom .CSV data file.
- Made accident_severity algorithm and checked with NHTSA Data.
- Finished block diagram.
- Finished flowchart.

Progress - Hardware Part

Setting up Raspberry-pi

- Enabled I2C Configuration, VNC server-viewer.

- Installed necessary libraries and software to use the accelerometer.

Integrating and checking the sensor

- Connected to GPIO pins and ran some tests to checked if it worked.

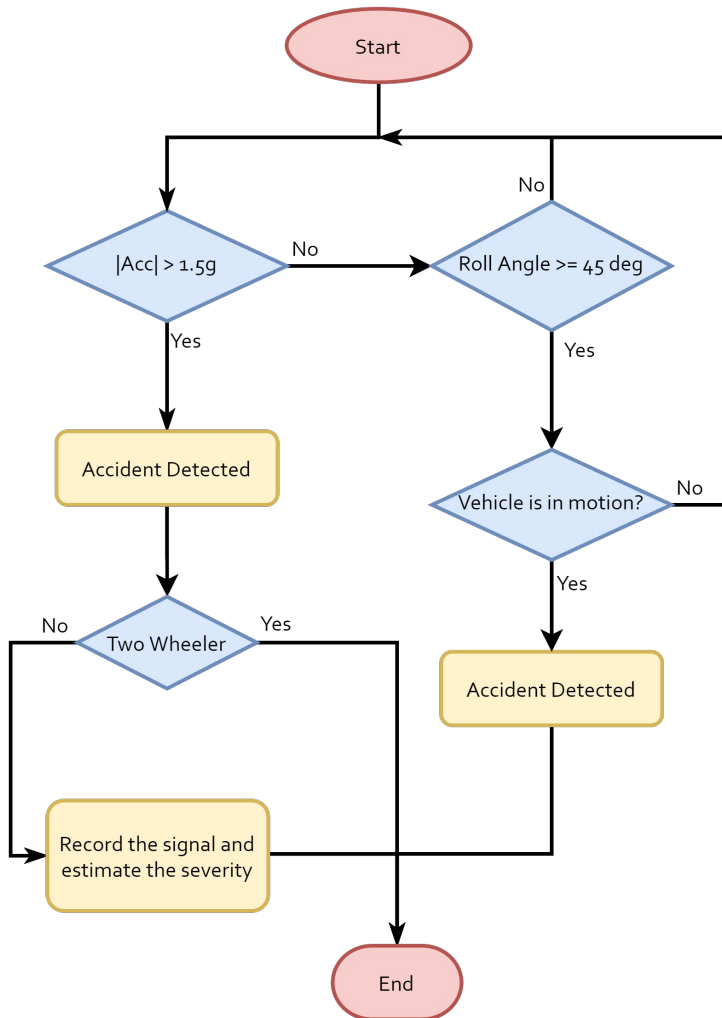- Ran some scripts to record manual acceleration data.
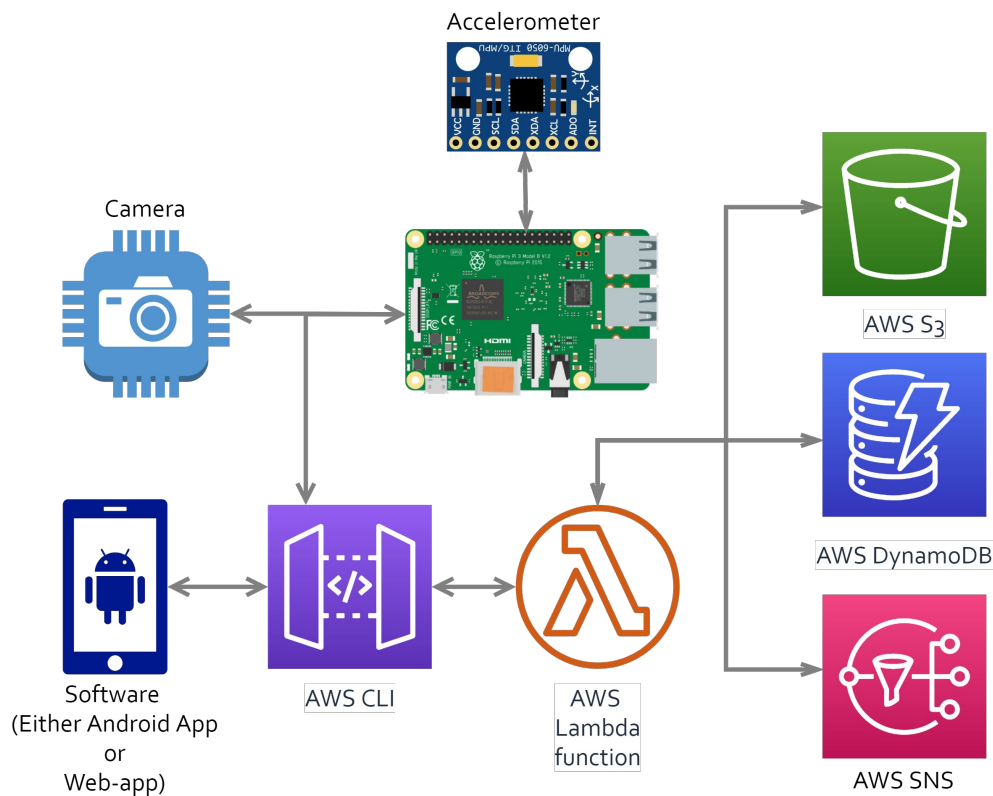
Progress - AWS Part

On Raspberry-pi

- Installed Command Line Interface on the OS of R-Pi.

- Imported AWS Certificates and keys to authenticate the device.

On AWS Cloud Console

- Created public and private keys, root certificate and access certificate.

- Also attached policies to use the cloud with R-pi which allowed to authenticate.

Flowchart

Accelerometer

Camera

AWS S3

AWS DynamoDB

Software
(Either Android App
or
Web-app)

AWS CLI

AWS
Lambda
function

AWS SNS

System Design

Issues Tackled

- The algorithm was crashing a lot so had to initiate from the beginning.

- MPU6050 burnt once so had to reorder which took a few days.

- The NHTSA data didn't make sense and it was incredibly difficult to work with it.

- The NHTSA data was too huge to work with and had to merge different types of files manually which took days.

Next Steps

On Hardware

- Integrate Camera with R-Pi.
- Make a sturdy trolly-like system to check the working of the project after completely testing the accident_severity algorithm.

Issues:

- Need constant AC power and internet connectivity for R-Pi.

Next Steps

On Cloud

- Configure Lambda Function on AWS.
- Integrate Lambda Function with the *accident_severity* algorithm.
- Integrate SNS to send notifications.
- Integrate S3 Bucket to save pictures.
- Integrate DynamoDB to save all the data and tracking.

Next Steps

On Software

- Integrate R-Pi, AWS and software.

Thank You.