Lab 2C In-lab assignment

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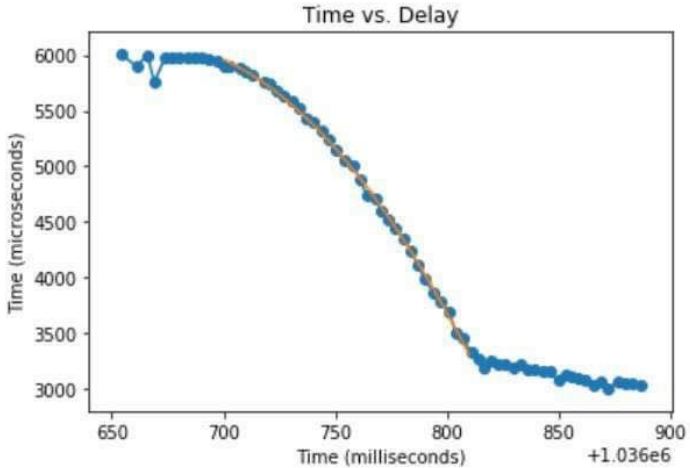
Accelerometer Calibration Data

Orientation	Average value corresponding to 1g
+X	16453
-X	-15976
+Y	16445
-Y	-16228
+Z	17392
-Z	-16450

Direction	Offset - Average Value Corresponding to 0g
X	477
Y	217
Z	942

Free fall ultrasound Python plot

Show the plot obtained from ultrasound data.

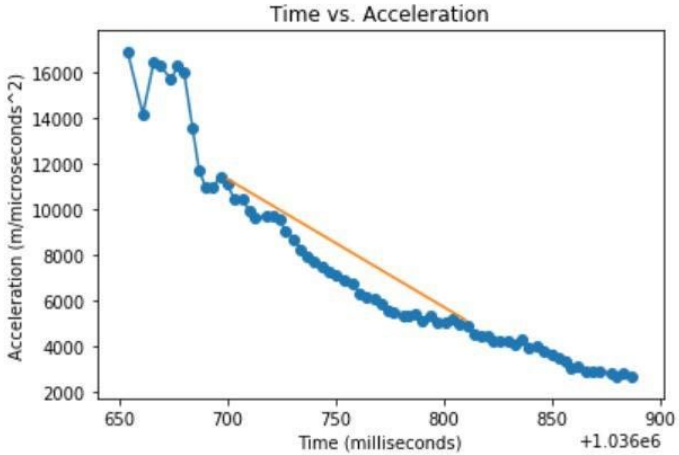


- Report acceleration as derived from ultrasound (using polyfit of order 2).

  -14.660 m/s^2

Free fall accelerometer plot

Show the plot obtained from accelerometer data in direction of free fall.



- Report acceleration obtained.

  a = -11.224 m/s^2

Answer the following

Q 1: Explain the behavior of the accelerometer during this experiment.

- We kept the accelerometer only in the direction of free fall so that it had a substantial change in its value for the negative x-direction as it fell towards the floor. The accelerometer was then able to measure the acceleration based on how the mass within the accelerometer pressed on the capacitor plate.

Q 2: Report acceleration from ultrasound and accelerometer for the other 2 datasets.

Data Set #	Ultrasound Acceleration	Accelerometer Acceleration
2	-14.892 m/s^2	-11.125 m/s^2
3	-14.967 m/s^2	-11.569 m/s^2