CS4222 Homework 2 Report

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1. The Maximum Achievable Frequency for the Data Collection

The maximum achievable frequency is about 185-192Hz.

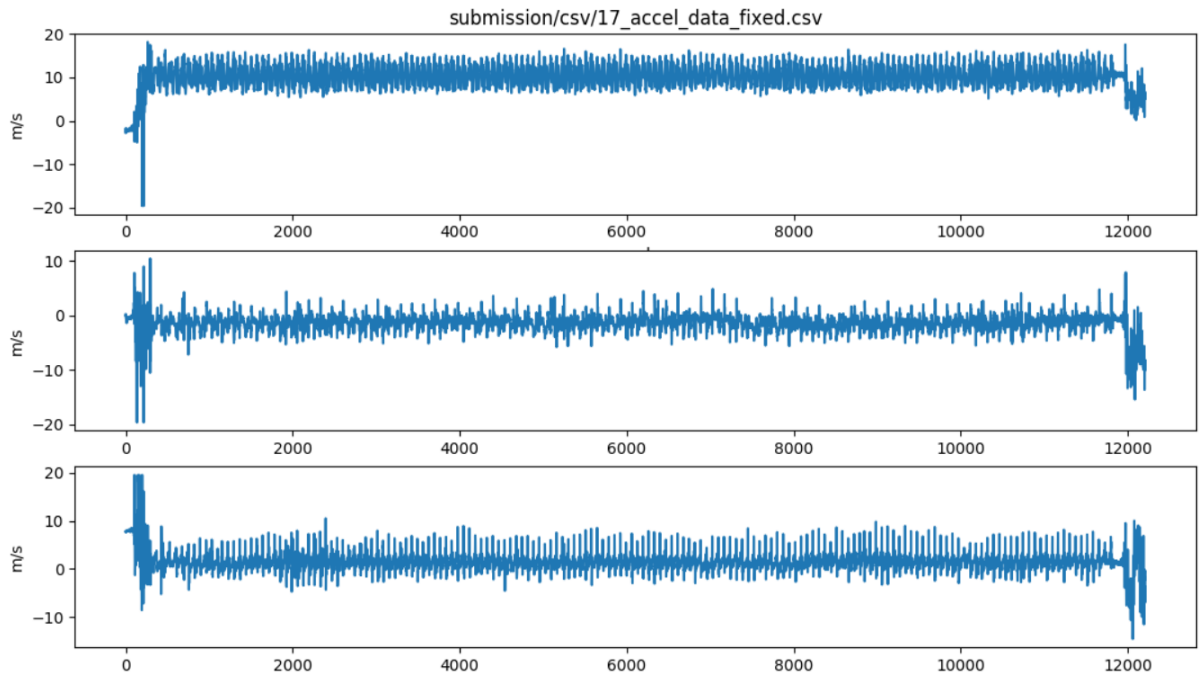
The result is measured by using `rtimer` with an interval set to `RTIMER_ARCH_SECOND*0.001` to constantly call `get_mpu_reading()`. This theoretically gives us a maximum of 1000 timer interrupts per second. In reality, 185-192 samples are collected per second due to IO overhead.

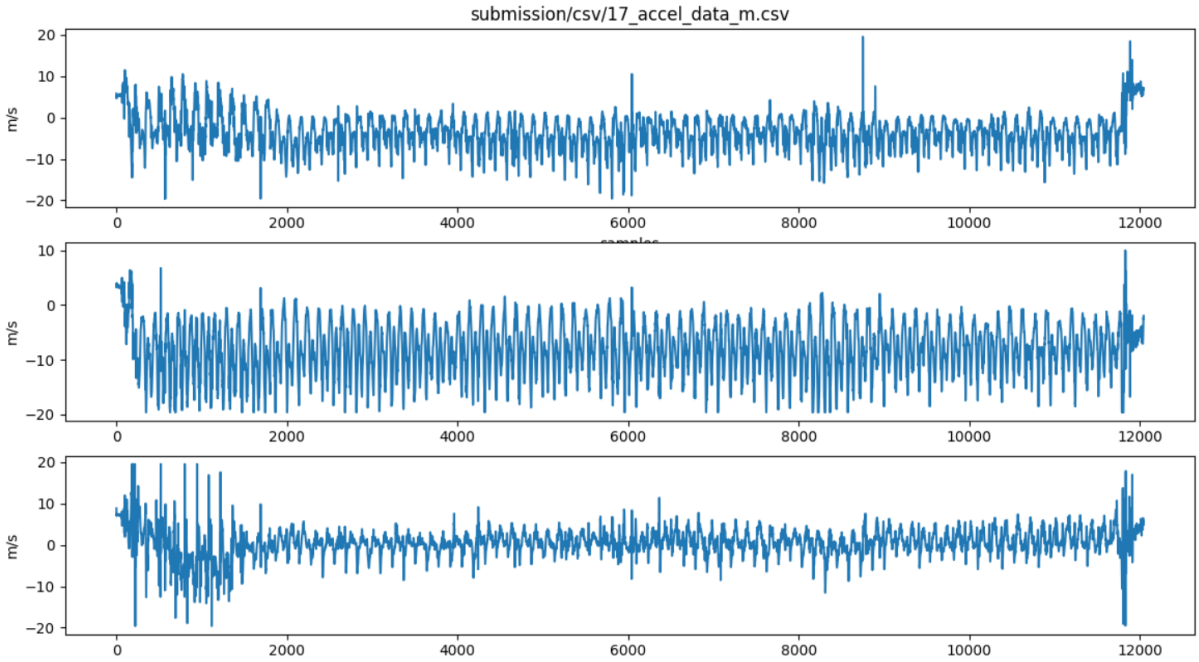
We choose `rtimer` over `etimer` in the given code because `etimer` uses `CLOCK_SECOND` from the clock module for handling system time. By definition:

```
CLOCK_SECOND; // The number of ticks per second.
```

which is an OS dependent constant. Our preliminary test shows that `CLOCK_SECOND` is set to 128 on CC2650 which renders `etimer` incapable of calling a function at any frequency >128Hz.

2. Data Charts





3. Total Number of Steps for the Two Walks

Filename	Duration	Step Count
17_accel_data_fixed.csv	1m 30s	164
17_accel_data_m.csv	1m 30s	167

4. Description of the Algorithm implemented

5. Accuracy of the Algorithm

Filename	Actual steps	count_step
17_accel_data_fixed.csv	164	172
17_accel_data_m.csv	167	169