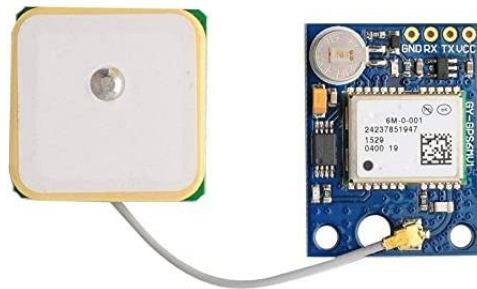


# VIBRATION LOGGER

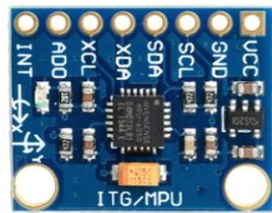
---

An ESP32-Based Datalogger for GPS and Accelerometer Data

# Components



NEO-6M GPS Module



MPU6050 Accelerometer

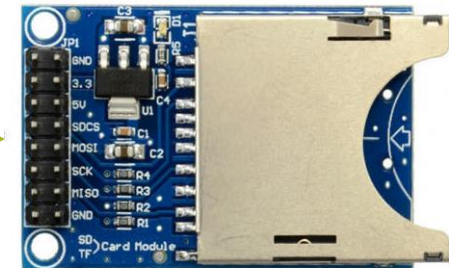
UART

i<sup>2</sup>c



ESP32 Board

spi



SD Card Module

# Data Structure

```
struct timeseries
```

```
{
```

```
    int16_t readings[TIMESERIES_LENGTH][TIMESERIES_WIDTH];
```

```
};
```

} Accelerometer Readings

```
struct datablock
```

```
{
```

```
    timeseries acceldata;
```

} Acceleration Data

```
    uint8_t date_day;
```

```
    uint8_t date_month;
```

```
    .....
```

```
    uint8_t latitude_degrees;
```

```
    .....
```

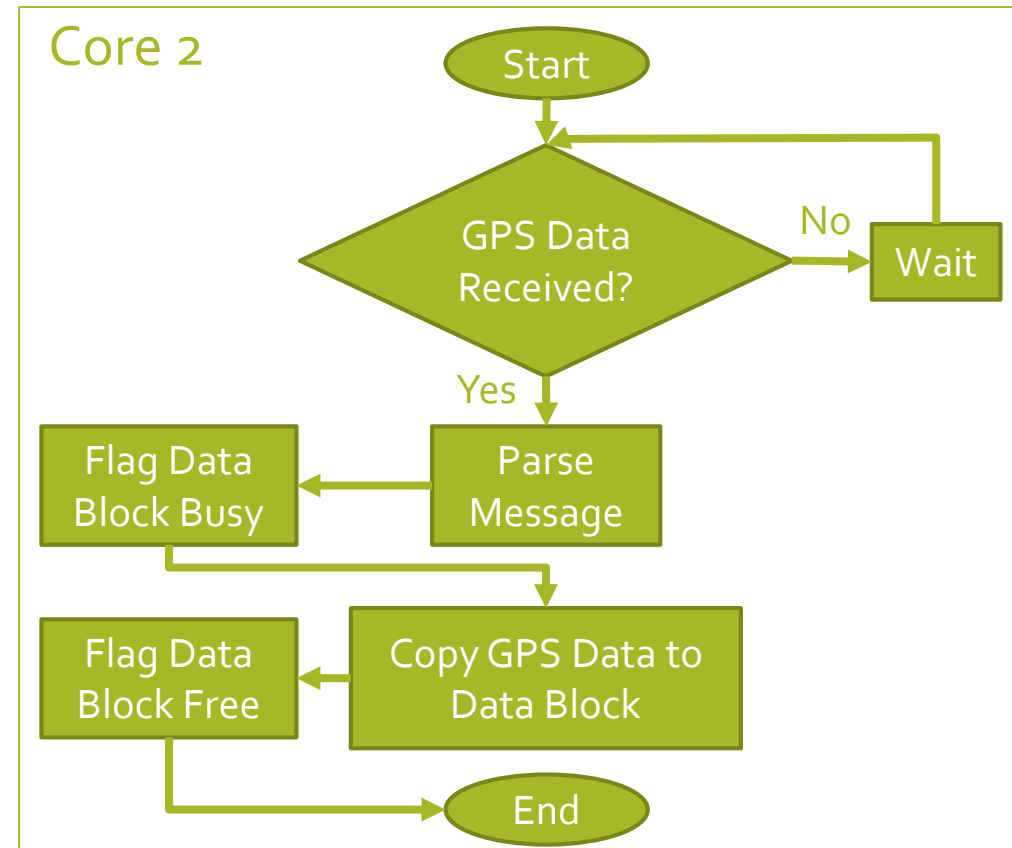
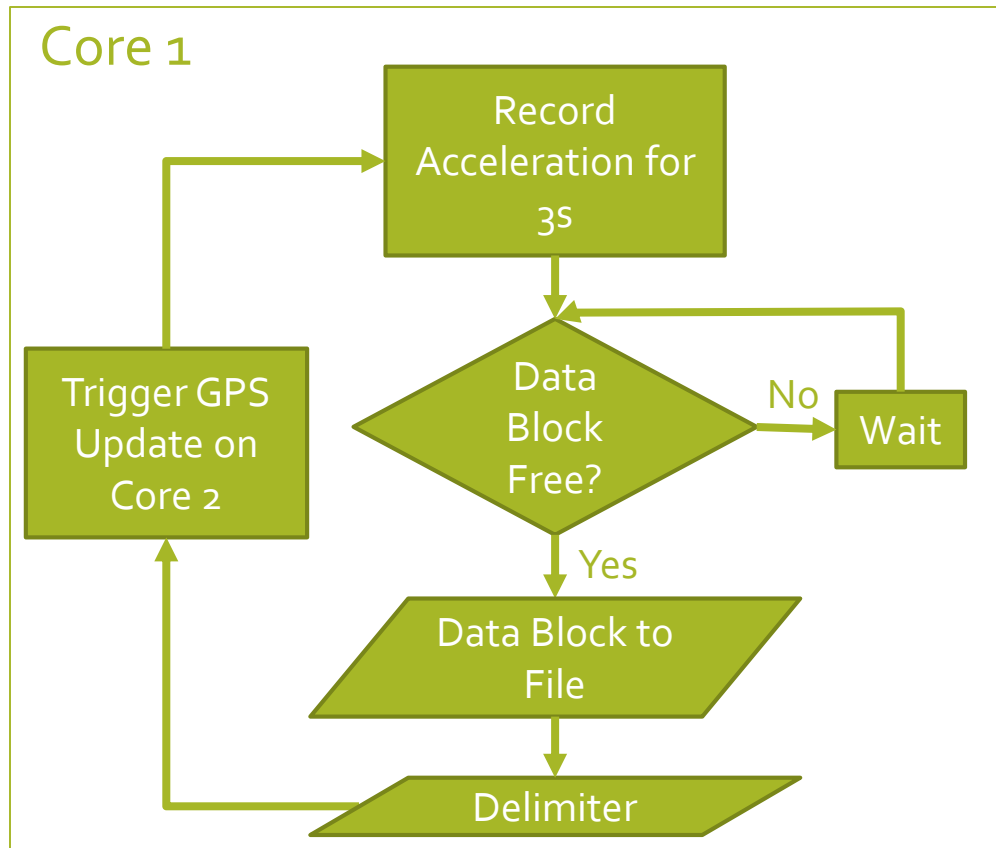
```
    double longitude_minutes;
```

```
    .....
```

```
};
```

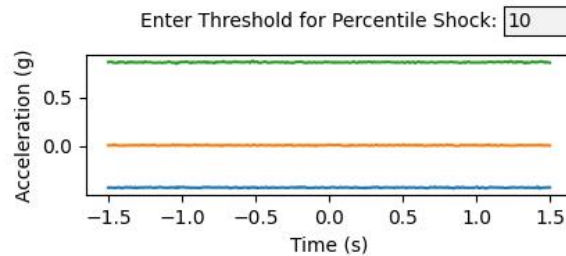
} GPS Data

# Algorithm

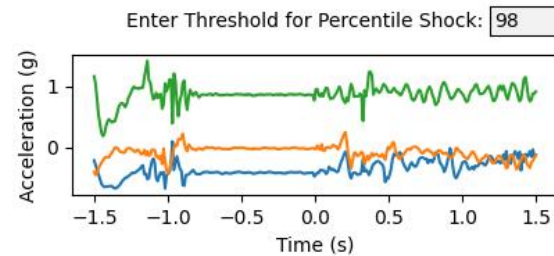


# Sample Data

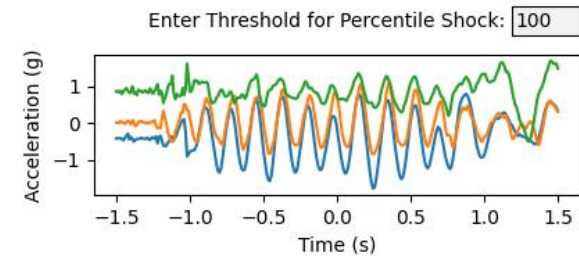
Date 8/1/21  
Time 16:27:51.0  
Latitude 26 30.21893N  
Longitude 80 13.93837E



Date 8/1/21  
Time 16:33:4.0  
Latitude 26 30.21454N  
Longitude 80 13.91413E



Date 8/1/21  
Time 16:33:1.0  
Latitude 26 30.2141N  
Longitude 80 13.91388E



Thank You.