Dynamic Gesture Dataset

Dynamic gestures are the kind of gestures that involve hand movement during the gesture performance. The dynamic gesture dataset contains the sensor data for **3** dynamic gestures. These data were collected from **5** volunteers (both male and female) with age ranging from 21 to 32 years. A brief description of the dataset is given in the table below.

Number of Gestures	3
Number of Participants	5 (3 male and 2 female)
Sensors	1 3-axis accelerometer
Sampling frequency	7 Hz

The Dataglove

The dataglove has five SEN-10264 flex sensors over the five finger joints and a MPU-6050 Inertial Measurement Unit (IMU) sensor which contains 3-axis accelerometer and 3-axis gyroscope in the same package. For sensor data processing and connectivity, we used DOIT Esp32 DevKit v1 board. The processing unit can achieve maximum clock speed of 240MHz which enables real-time application with gesture detection. For portable power source, we have used a 7.4V Lithium Polymer (LiPo) battery.
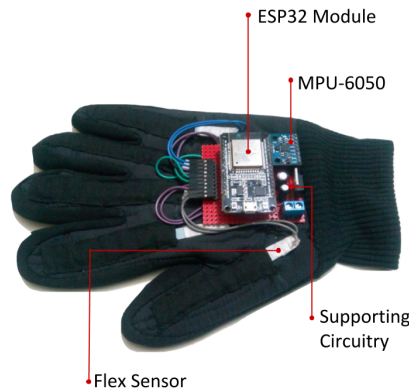

Figure 1: The Dataglove

The Gestures

The gestures included in this dataset are *Painting, Thank you and Sorry*. These gestures were performed according to the standard American Sign Language (ASL) format as shown in the figure below.

Figure 2: The Gestures

Dataset File Structure

The dataset file is structured in comma separated (`.csv`) file format. file can be found inside the `Dataset` directory with the filename of `dataset.csv`. Each column of the file contains data from a specific sensor. The last column contains the corresponding *labels*. The structure of the dataset file is shown in the figure below.

	Acc_x	Acc_y	Acc_z	Label
0	2	6	8	Painting
1	8	31	25	Painting
2	-25	11	-5	Painting
3	9	-55	-32	Painting
4	6	-41	-4	Painting

Figure 3: Dynamic dataset file format

The dataset file contains a total of 2447 rows or in other words 2447 samples. Since all the gestures in this dataset are dynamic, windowing is **required** for feature extraction.