

Be strong, be healthy, be you
with our fitness community



Problem Statement

Recognizing human activity in our world is a challenging problem that requires precise detection and classification of various activities, yet current approaches often lack the necessary accuracy and reliability, impeding the goals of monitoring health and fitness activities, preventing injuries, and aiding the elderly or disabled.

Project Description

The Human Activity Recognition (HAR) model is a machine learning project that focuses on detecting and classifying human activities based on sensor data. This project typically involves using data from sensors like accelerometers and gyroscopes, which are commonly found in smartphones and wearable devices.

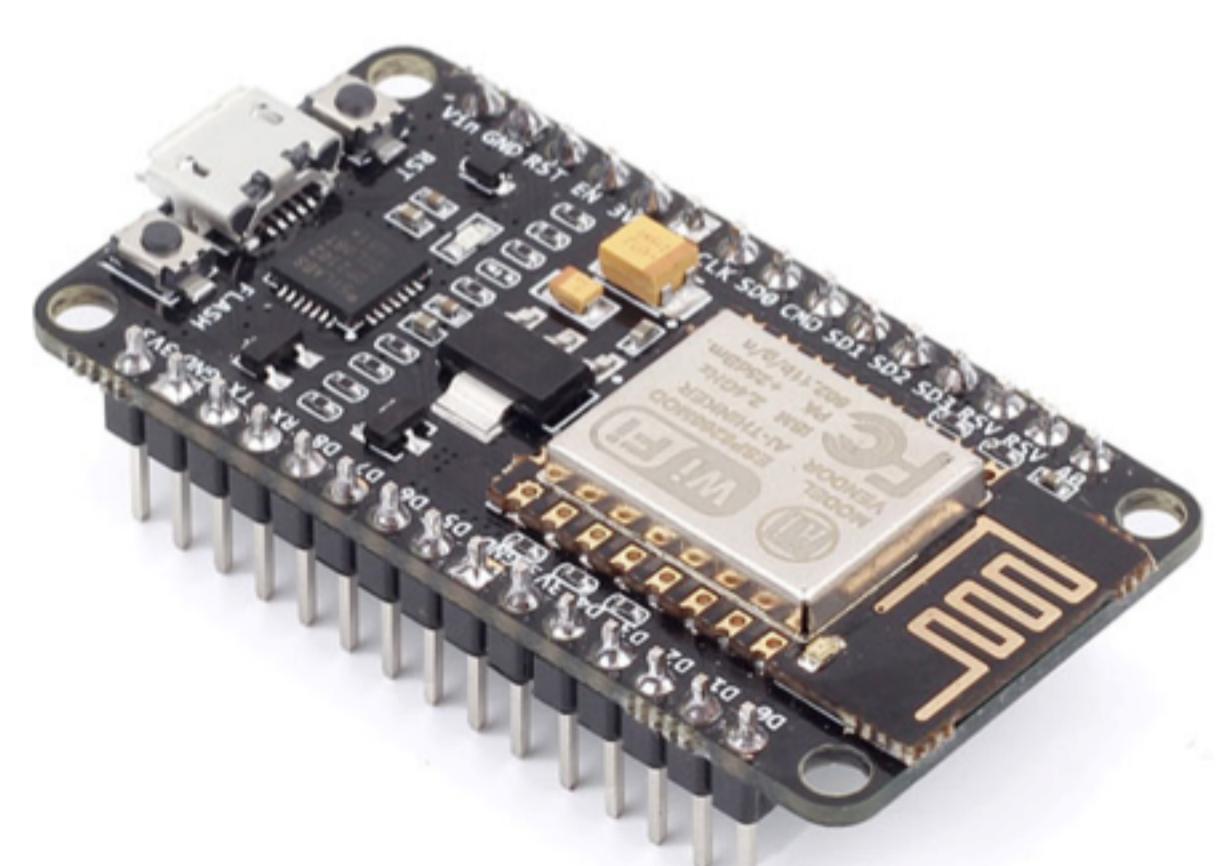
The goal of the HAR model is to develop algorithms that can accurately recognize and classify human activities in real-time. This can be useful in many different contexts, such as health monitoring, sports training, and security applications.

Technologies

1. Machine Learning
2. ESP8266 NodeMCU Development Board
3. MPU-6050 Module for Motion Sensing
4. Eloquent Library for Model Loading
5. Webserver (HTML, CSS, JavaScript and HTTP protocol)

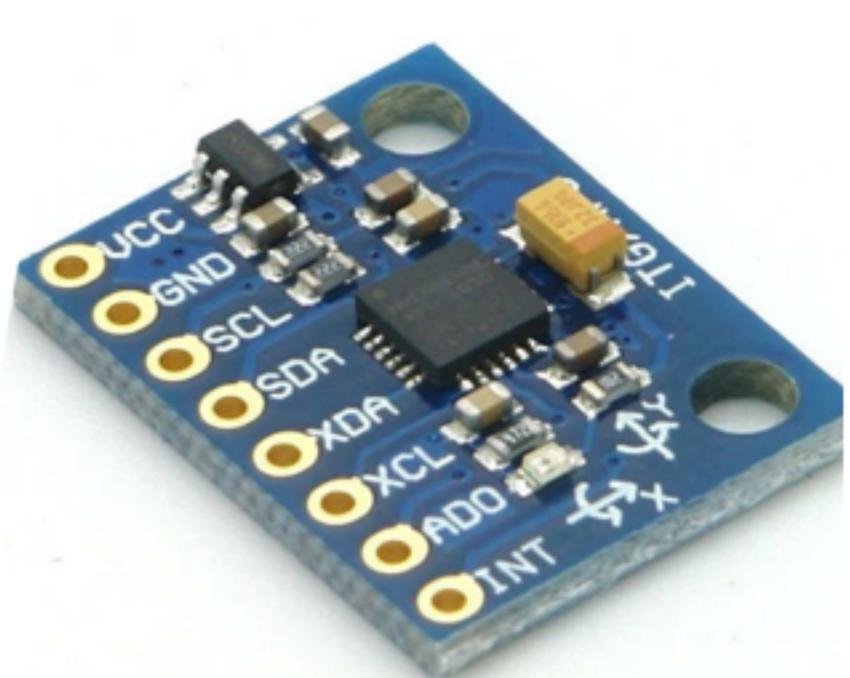
ESP8266 NodeMCU Development Board

The ESP8266 NodeMCU Development Board is a **low-cost** microcontroller board that features the **ESP8266 WIFI module**, allowing it to connect to the internet and perform various IoT and web-related tasks.



MPU-6050 Module

The MPU-6050 module is a 6-axis **accelerometer** and **gyroscope** sensor module that can measure **motion, tilt, vibration, and orientation** in various applications such as robotics, drones, and gaming.



Sky Team

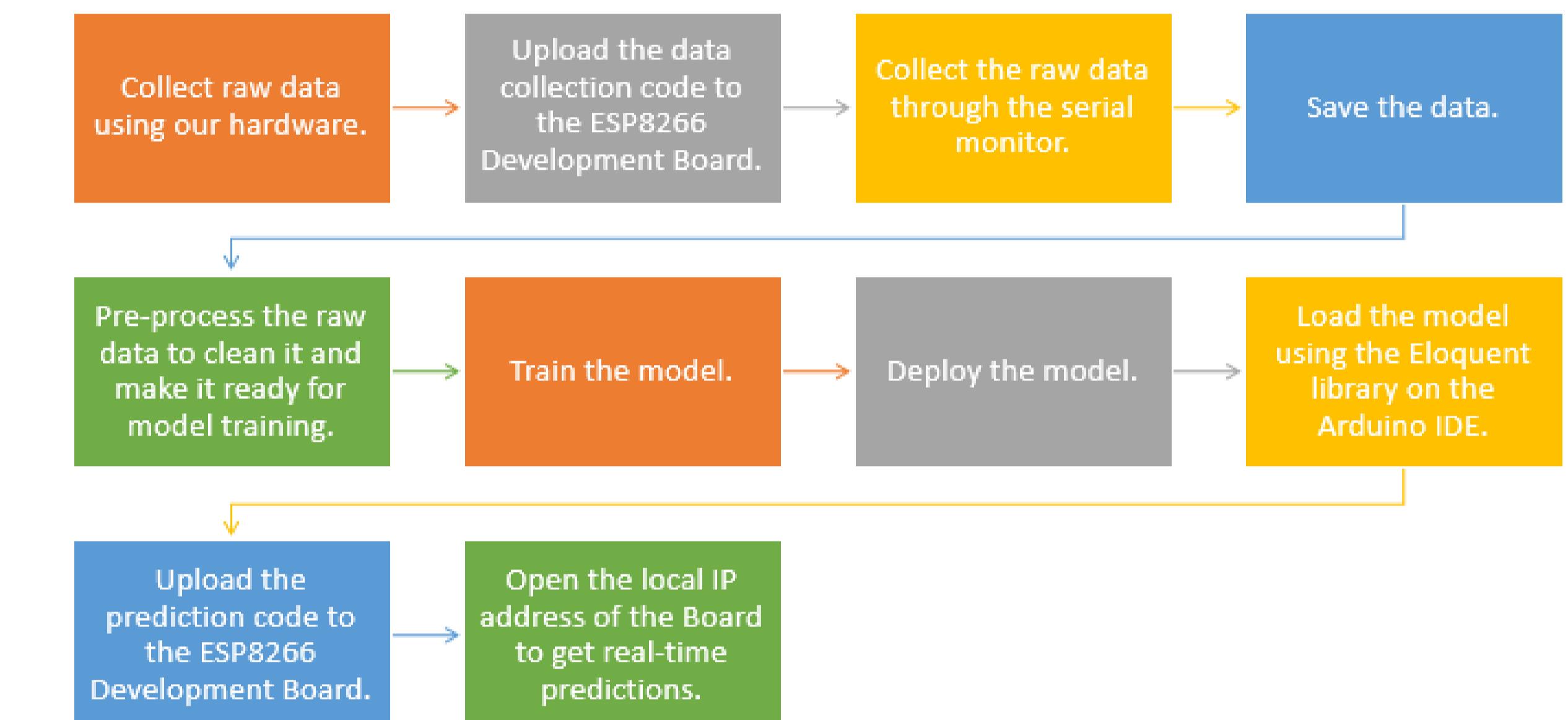
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Project Steps



What I have learned with IEEE

I had a simple background with machine learning, but I learned a new algorithm called Support Vector Machine and used it to train the model and more knowledge in data pre-processing.

Summary

My name is Ashraf Abdulkhalil and this my project an Arduino-based human activity recognition system using an MPU-6050 accelerometer and ESP8266 NodeMCU development board, designed to provide real-time activity predictions and benefit users interested in tracking their physical activity.