# Gesture Recognition using Wi-Fi Sensing

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## Overview

**802.11 sensing** or **Wi-Fi sensing** is the use of 802.11 signals to sense (e.g. detect) events/changes in the environment. Often using signal processing and machine learning.

## Goals

- ➔ Since WiFi signals are omnipresent these days. We can easily find a WiFi access point in a modern household. So we plan to build a ubiquitous Wi-Fi-based Gesture Recognition System.
- ➔ We are planning to build a system that can detect simple gestures like swiping or pushing. Thereafter we plan to use this system to control IoT devices through gestures.

## Specifications

- ➔ This project has both hardware and software aspects.
- ➔ We will be using ESP-32 in this project to create dataset and as Rx nodes.
- ➔ We collect different training data samples for a given gesture and feed it to an ML model.
- ➔ Metric to be used in the data set will either be **Received signal strength indicator(RSSI)** (or) **Channel state information(CSI).**
- ➔ We will be using a Machine learning model to predict the event performed.
- ➔ The Machine learning algorithm will be a supervised learning classification algorithm and we have not decided on the specific algorithm.

# Team Members

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**For detailed information regarding the project :**

https://drive.google.com/file/d/1lpZu8jgMEvofbrOcCz6YS77rZc0nw--F/view?usp=sharing