**ROADMAP TO PROJECT**

# **Steps and task allotments**

## **Step 1- Download Dataset**

### **Way 1-one whole dataset**

This dataset contains thousands of mmWave radar point cloud sequences. It includes object categories such as humans, walls, backpacks, and more. It captures Doppler, intensity, and spatial coordinates (X, Y, Z). Useful for classification and intrusion analysis.

· Download Link: <https://zenodo.org/records/8301276?utm_source=chatgpt.com>

### **Way 2-combining or exploring different datasets**

Will explore later

## **Step 2 - Explore data format: CSV files with columns [x, y, z, doppler, intensity]**

## **Step 3 - Label data: Based on object type (e.g., human vs. object vs. wall)**

## **Step 4 - extract features**

### **Point clustering (DBSCAN)**

### **Calculate velocity, range, reflectivity**

## **Step 5 - Data Pre-Processing**

### **Step 1: Data Collection / Import**

### **Step 2: Basic Cleaning**

### **Step 3: Feature Extraction**

### **Step 4: Labeling the Data**

### **Step 5: Resampling / Balancing Classes**

### **Step 6: Normalize / Standardize Features**

### **Step 7: Save Processed Data**

## **Step 6 -Train classifiers: RandomForest, CNN on 3D heatmaps, or point-cloud models (PointNet)**

### **To be explored…..**

## **Step 7 - Visualize results: Scatter plots, heatmaps in Dash/Plotly**

**To be explored…..**

## **Step 8 - Designing Of Dashboard**

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