Project Title: Ultra Care AI: Patient Monitoring System

The project aim at full patient monitoring at hospitals. Here we tried to integrate 3 models which include keyword spotting, Movement detection and Patient Bed presence. For each model we have collected Data and no artificial data was used. Below is explanation of each model and its dataset:

1. Keyword Spotting: If patient call out for “Help”

* Two classes “Help” and “Noise”.
* Training dataset of 365 samples with 196 samples of “Help” and 169 samples of “Noise”.
* Test dataset of 92 samples with 49 samples of “Help” and 43 samples of “Noise”.
* “Help” data was recorded using 8 different students for generalization and “Noise” was collected at when 2-3 people are talking with each other and also when there no talking. Data was collected using mobile phone

1. Patient Bed presence: Detects Patient is on bed or not.

* “Present” means on bed and “Absent” means not on bed.
* Training dataset of 172 samples with 136 samples of “Present” and 36 samples of “Absent”.
* Test dataset of 43 samples with 37 samples of “Present” and 6 samples of “Absent”
* The data was collected in Hostel room and considering 4 different patients for generalization
* Data was collected using Mobile camera for good quality data to enhance training.

1. Movement detection: To check if Patient if “Idle” and “ Waving hand” for help.

* “Idel” has 6500 samples , “Waving\_hand” has 6500 samples.
* Data was collected using nano BLE 33. “Idle” was collected with different posture when patient is resting. And “Waving hand” was collected with keeping in mind how patient would react when facing some issue and want help.