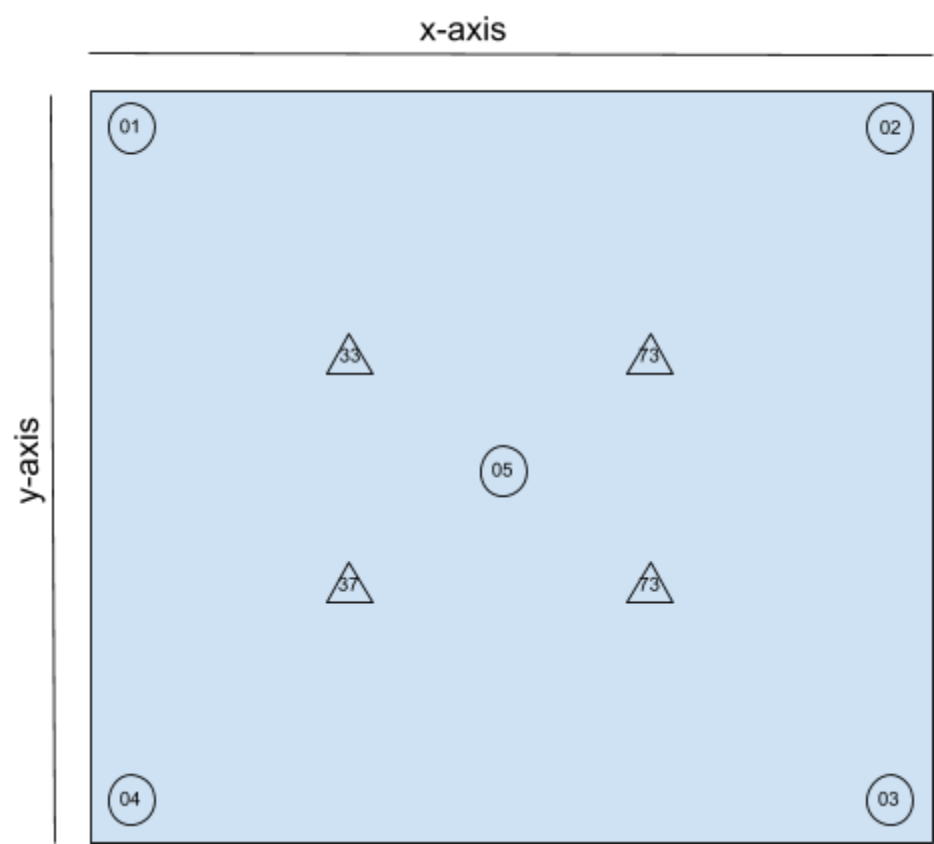


Localization Project Data Collection

Experimental Setup

The figure below shows the experimental setup, the dimensions of each side are 1 meter. Circles show the device locations, while triangle represents the event locations. By dividing the square into 10x10 grid, triangle labelled 73 represents the events in the 7th grid along x-axis while 3rd grid along y-axis with device labelled 01 at the origin.



The table below contains the details regarding the devices used in the experiments. The data from each device is contained in a separate file, the microphone data file name is formatted as

“data_{device_name}_{sensor_type}_{device_label}_{event_grid}_{data_collection_time}” while the IMU data file names follow the format

““data_{sensor_type}_{device_name}_{device_label}_{event_grid}_{data_collection_time}.txt”.

The accompanied python script parses the data to provide data values as well as the corresponding timestamps. There can be some gaps in the microphone data, since it was collected over wifi where some packets can be dropped due to network issues. But these gaps can be handled using the timestamps and data rate information.

The timestamps in each file have a different timestamp, so you may have to manually align data streams, there are multiple events, maximum of 24 in each data stream spaced by approximately 10 seconds or it multiples, these should help you align the data streams.

Device Label	Device Type	Sensor Type	Data Rate (Hz)
01	ESP32 Things	Microphone	8000
02	ESP32 Things	Microphone	8000
03	ESP32 Things	Microphone	8000
04	ESP32 Things	Microphone	100
05	ESP32 Things	Microphone	60