**System Architecture Details**

**Hardware Components Used**

* Raspberry pi 4 with Camera Module: captures Images and handles Facial Recognition
* PIR Motion Sensor: Detects motion at the door.
* Doorbell Button: Allows the user to initiate interactions, it’s like a doorbell button which gives the user the feel for the regular bells, acts as a trigger for the camera sensor.
* Speaker: provides Audio Feedback that the user has intended to output through the App
* LED: Turns on when the camera turns on to help the user know when the camera is going to take an image.
* Power Supply: The power is supplied from the raspberry pi.

**Web Server:**

* Flask server: Hosting the web application and the API endpoints.
* Kotlin: Using Jetpack Compose build an App for the frontend client user

**IOT Elements**

Apart from all the sensors and hardware we also have the following things we are going to be using

* PubNub : This helps real time communication between Pi and the frontend App , the app will be subscribed to the pubnub which is going to output all the data
* Raspberry Pi: It is going to be the software for the bell that we are building.