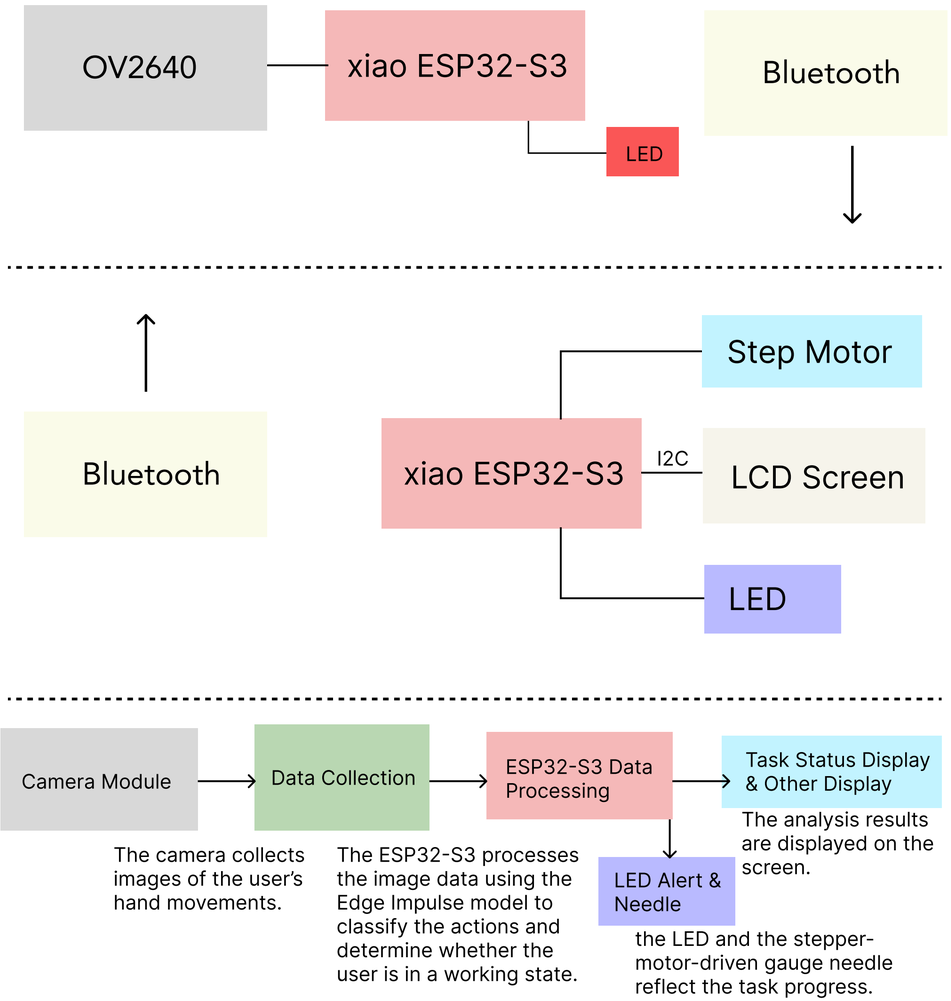
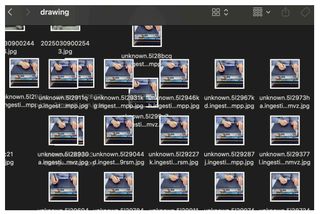
System Architecture & Machine Learning



1. Dataset

I take picture of over 400 pictures for this image Detection dataset . It is partitioned into three subsets: the training set, which includes 300 images; the validation set, containing 100 images; and the test set, consisting of 80 images.



2. Model Training

I trained the model using Edge Impulse's MobileNetV2 0.35 to improve the speed and accuracy of object detection tasks, achieving a recognition accuracy of 73.8% for detecting the drawing state.

EDGE IMPULSE

3. Coding

The trained model was exported as an Arduino library for deployment. Additionally, the serial port outputs a clear and readable recognition status and performs evaluations based on specific conditions.

4. Bluetooth

Set the sensor device as the server and the display device as the client. The server transmits the evaluation results via Bluetooth to the client, which then displays them.