

Electronic Component Detector Project using YOLOv11

-By Labib Tahmid

Project Concept:

Many electronics labs work with various electrical component. Usually, they are not organized when using them, so they look messy. My project, Electronic Component Detector can solve this issue by finding which component is what and the number of component present in an image, video or even live webcam feed.

Unique Objects:

For this project, as electronic component, I am choosing the followings:

1. Arduino
2. ESP32
3. Battery
4. DC motor
5. Sensor
6. Display

I wanted to add resistors, diode but they are very small and can cause problem, so the previously discussed components are selected.

Dataset & Model:

As there are 6 class, I intend to take 50 pictures of each component and make total of 300 images. Each 50 images are divided by following,

1. 20 images for single component
2. 20 images with another component
3. 8 images with 2 other components
4. 2 images with 3 or more components

As for the model, I have to use YOLO model like YOLOv8 or YOLOv11.

Application Scope:

This project can be useful in several situation. Such as,

1. Inventory counting of electrical component
2. Management of Lab equipment
3. Identification of components