

# PRESENTED BY

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### INTRODUCTION

- ➤ Industrial Automation Technique project is base on deep learning
- > This project include two parts hardware and software.
- > This project is based on image detection technique
- > Object detection process not only help in detecting the object's image but also gather the information and data for unique identification of object.
- > This technique is use in production factory like Logistic supply chain companies, FMCG, Packaging companies etc.
- > This technique is very useful and save a lot of time and human error.

# EXISTING SYSTEM

**☐ Model Training** 

**□Object tracking** 

□ Counting objects and inserting data into database

**□** Showing data in Web Page

# TYPES OF YOLO V5











Nano

YOLOv5n

4 MB<sub>FP16</sub> 6.3 ms<sub>V100</sub> 28.4 mAP<sub>COCO</sub> Small

YOLOv5s

14 MB<sub>FP16</sub> 6.4 ms<sub>V100</sub> 37.2 mAP<sub>C000</sub> Medium

YOLOv5m

41 MB<sub>FP16</sub> 8.2 ms<sub>V100</sub> 45.2 mAP<sub>C000</sub> Large

YOLOv5I

89 MB<sub>FP98</sub> 10.1 ms<sub>V100</sub> 48.8 mAP<sub>COCO</sub> XLarge YOLOv5x

166 MB<sub>FP16</sub> 12.1 ms<sub>V100</sub> 50.7 mAP<sub>C000</sub>

### REQUIREMENT SPECIFICATION

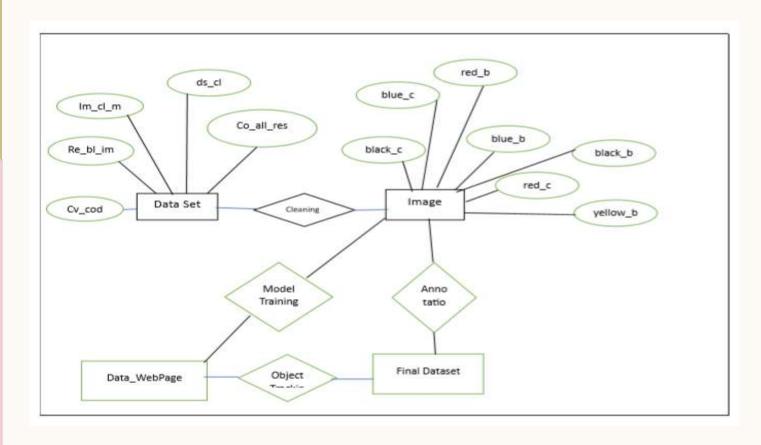
#### Software

- **Python**
- **❖**Google Colab
- **CVAT**
- **\***YOLO V5
- **♦** Strong SORT
- **♦**HTML,CSS, JS,PHP
- phpMyAdmin

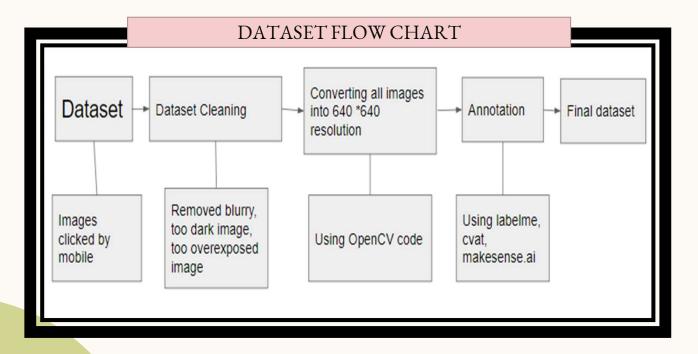
#### Hardware

- **❖** Johnson Motor
- **♦**12 volt adapter
- \*Rack & Pinion

# **ER Diagram**

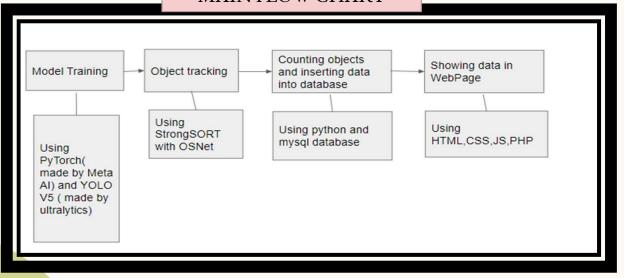


# FLOW CHART



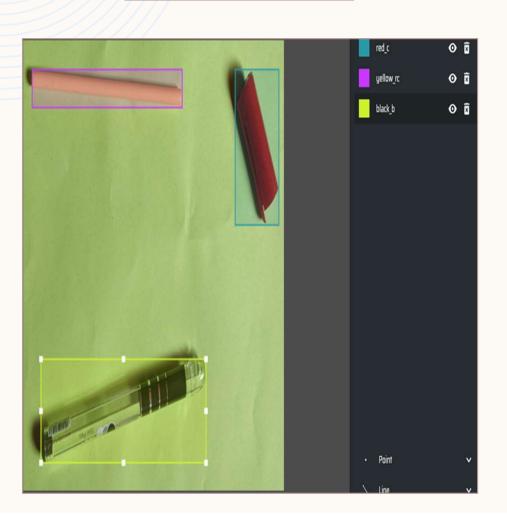
# FLOW CHART

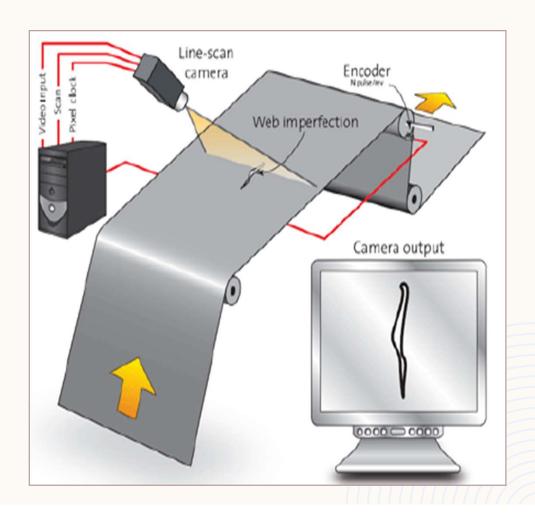
#### MAIN FLOW CHART



#### DATA ANNOTATION

#### OBJECT DETECTION





# EXAMPLE OF IMPLEMENTATION OF THE PROJECT

- We are going to detect a particular object in this project we have take a PEN as an object.
- Here we have divided the pen into four different parts namely PEN BODY, PEN CAP, PEN REFILL COVER AND PEN REFILL.
- There will be four different colors of pen i.e. RED ,YELLOW, BLUE & BLACK.
- At first we have trained our system by feeding the data of 1500 images of different parts of the pen at various angles.
- In our working model there is a conveyor belt that will carry the pen and its parts.
- A camera will be fitted at a suitable angle that it can check each and every object.
- The camera system will detect the object and will identify each and every specific object.
- After detecting the data will be collected and stored in our database.

### ALM OF THE PROJECT

- ✓ This project is mainly based on Industrial Automation Technique
- ✓ In this project we have use a production line of PENs for our reference.
- ✓ After manufacturing of the pens all pen comes in a same conveyer belt unseparated.
- ✓ Before further process of packaging, the camera fitted over the conveyor belt will detect each and every object and store the data
- ✓ For example It will detect red pen body ,black cap , yellow refill cover and refill .
- ✓ After that it will keep a count of each and every object in the data base for further process.
- ✓ This will help in accurate output of pens from the factory.
- ✓ It will remove human errors and better efficiency of the factory.

### FUTURE SCOPE

Industrial Automation Technique is very useful for the supply chain industry. From automobile industry to FMCG industry. The process reduces human error and is very efficient. Time is very precious and the technique can save lot. So that industry can focus on their product research and development.

In supply chain industry scanning and data collection is a major work which can be automated using the deep learning process.

### **CONCLUSION**

In conclusion, industrial automation has led us to develop comprehensive strategies for Industry 4.0. Although, manufacturers would soon have to prepare for the next generation, Industry 5.0.

It is a further advanced trend that will focus on personalization and immediate customer service. As a result, it will integrate people with "cobots" or collaborative robots.

## REFERENCES

- ➤ <a href="https://github.com/ultralytics/yolov5">https://github.com/ultralytics/yolov5</a>
- ➤ <a href="https://github.com/mikel-brostrom/Yolov5">https://github.com/mikel-brostrom/Yolov5</a> StrongSORT OSNet
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