“AUTOMATED PRODUCT QUALITY TESTING”

Yatish S H - 1DS17EI044
Mithil Dharmadhikari - 1DS17EI017
Nidhi P Closepet - 1DS17EI021
Sukanya Deka - 1DS17EI036

USING PLC PROGRAMMING

INTRODUCTION

- A Programmable Logic Controller, or PLC in short, is simply a special computer device used for industrial control systems.

- As it is easy to implement and program, the PLC is popular for Industrial automation. It is robust and can be used in harsh environments.

- A number of sensors and actuators are compatible with the PLC for performing several processes.

OUR IDEA

- Quality testing is an integral part of any industrial manufacturing process. The testing process is a rigorous task, where the products are test for hundred percent quality.

- Our **OBJECTIVE** is to provide an automated quality testing method of various fluids ,especially oils, based on several testing parameters.

- The parameters will be tested based on the data obtained from appropriate sensors and actuators for each product.

OUR IDEA

- With the advent of IIOT and Industry 4.0 , Automated manufacturing and testing has become even more efficient

- The project includes IIOT to allow the user to choose between the products that are to be tested remotely.Thereby reducing on-site involvement of any human element.

- The IIOT combined with the PLC will be used to select a particular product that is to undergo testing process. Hence it gives us an option to remotely handle, what and how the product will be tested.

-

BOSCH REXROTH
PLC

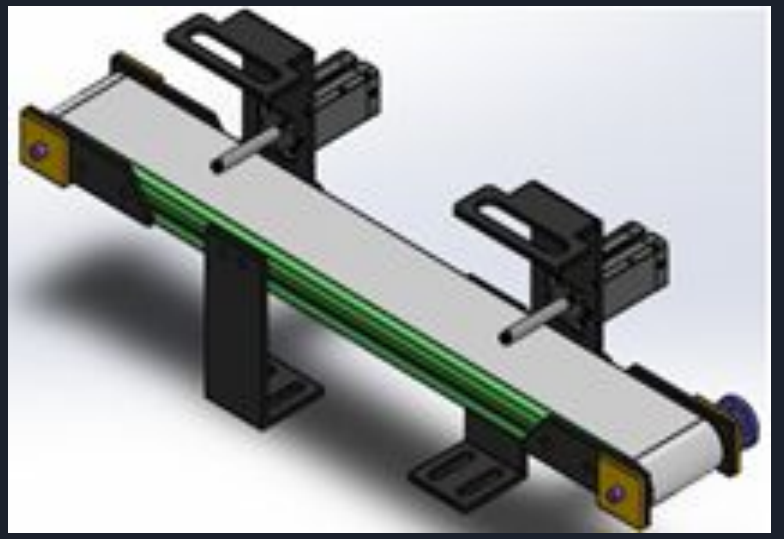
SERVO MOTOR

PNEUMATIC
ACTUATORS

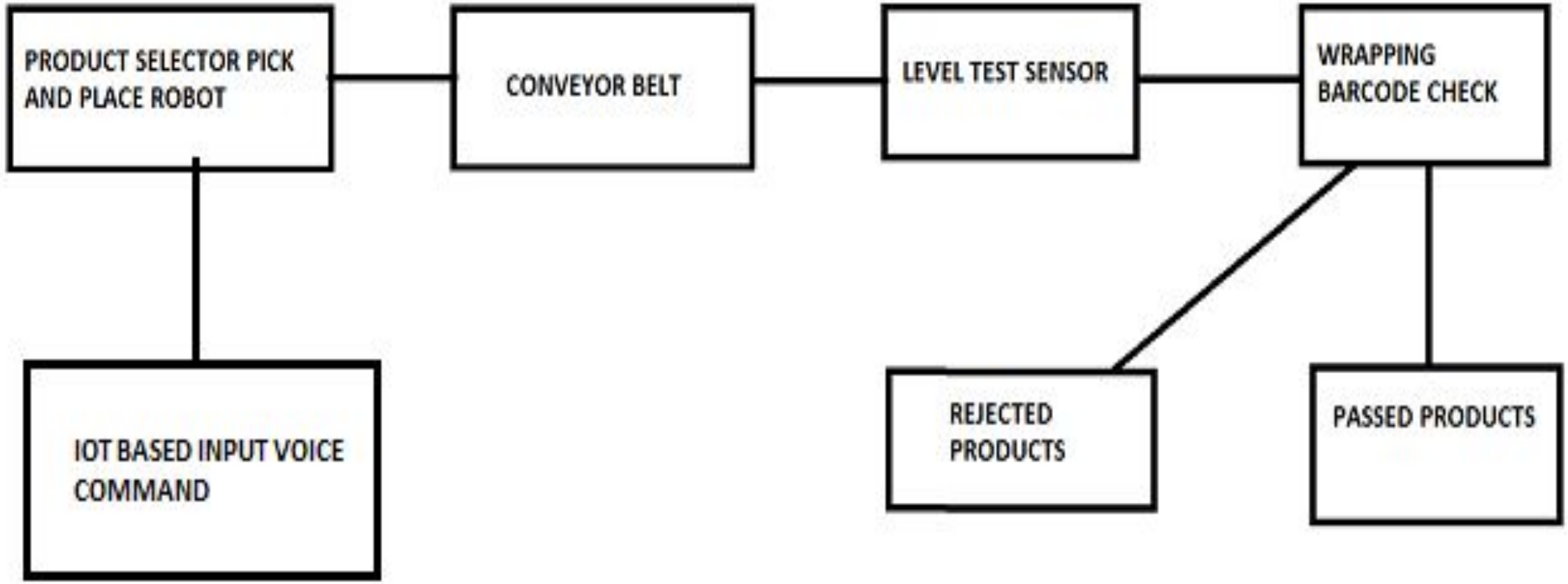
PROXIMITY SENSOR

LEVEL SENSOR

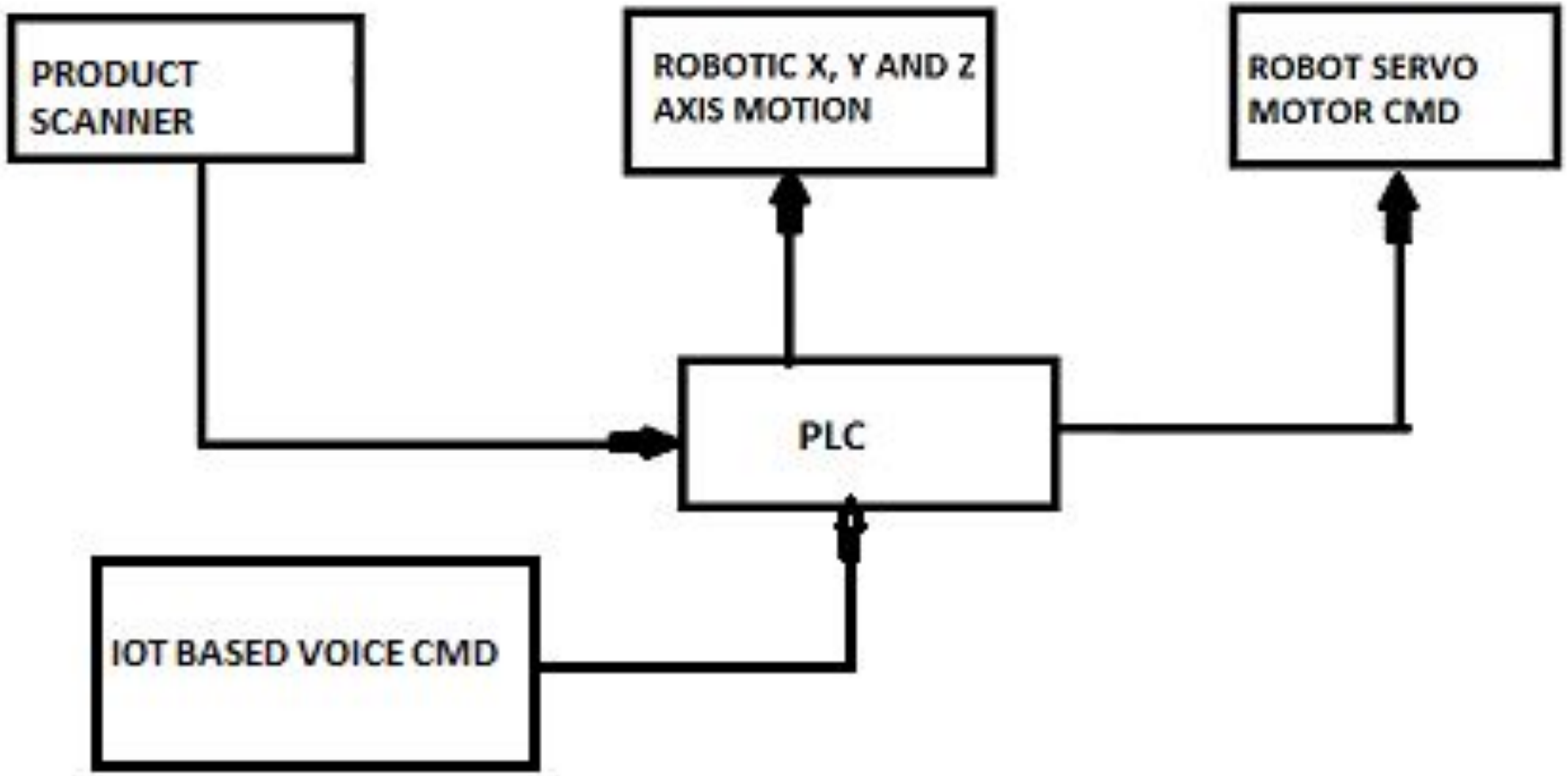
CONVEYOR BELT



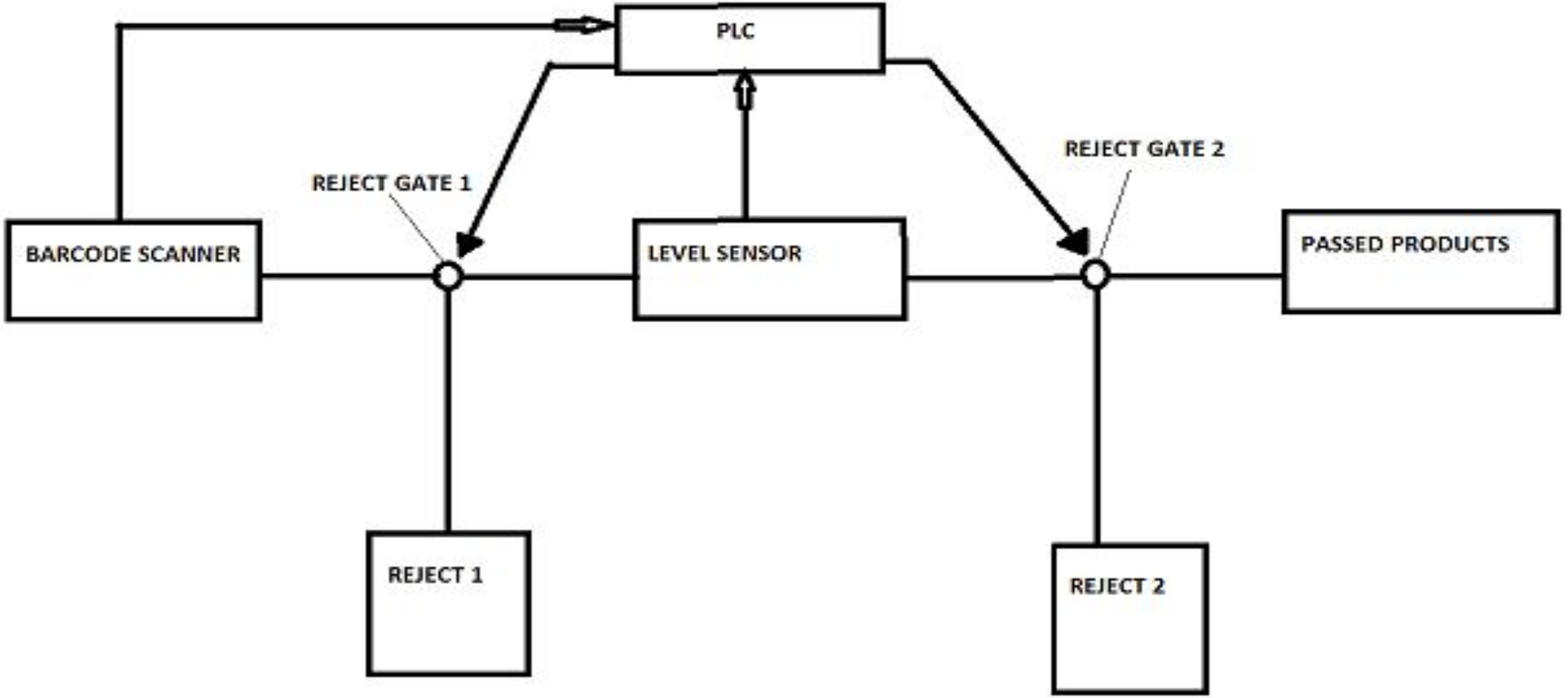
BASIC BLOCK DIAGRAM:



BLOCK DIAGRAM OF THE PICK AND PLACE ROBOT



BLOCK DIAGRAM OF TEST SENSORS



DURATION

- Total required 3-6 months (2 semesters)
    - PLC hardware and software training.
    - Project feasibility check.
    - Component and tools check.
    - Project construction .

ADVANTAGES AND DISADVANTAGES

- ADVANTAGES

Completely automated (safety).

Inclusion of IOT for efficient data transfer and process control.

Efficient means of quality testing using several sensors

- DISADVANTAGES

High initial cost.

Maintenance of conveyor belt and pick and place robot required.

REFERENCES

- Rexroth - https://www.boschrexroth.com/en/xc/products/product-groups/electric-drives-and-controls/engineering/software-tools.

- https://nevonprojects.com/plc-projects/

- https://www.caravelaiot.com/2018/04/iot-for-manufacturing-programmable-logic-controllers-plcs/


THANK YOU