

Design and Development of Smart Conveyor Using SCARA Robot for Industrial Applications

Dr. L. B. Abhang¹, Bhavana Shinde², Sakshi Raut³, Tanaya Shinde⁴, Kartiki Shinde⁵

Head of Department, Department of Automation & Robotics¹

UG Students, Department of Automation & Robotics^{2,3,4,5}

Pravara Rural Engineering College, Loni, Maharashtra, India

Abstract: *This research paper is a work on automation engineering. This paper focuses on developing an automated conveyor system for sorting objects. Paper presents the design and development of a smart conveyor integrated with SCARA (Selective Compliance Articulated Robot Arm) Robot and PLC (Programmable Logic Controller) for industrial use such as sorting. This project aims to reduce labor cost, production time, and improve product quality and production rate. So for that purpose, an effective method has been developed for automatically sorting the objects based on color and height. This system has sorted three different colors red, green, and blue. Firstly, the height have been sorted by IR sensor, and then the desired colors have been sorted by color sensor. A color detecting sensor will be situated in a position of conveyor belt that will detect three different color of object and divider will separate different colored object to designed bins while object of any other colour rather than RGB are automatically directed to the rejection bin. The bins has a specific portion in a particular color, it could be rotated at a specific angle for an exact height for red, green and blue colors.*

Keywords: Smart Conveyor, SCARA Robot, PLC Automation, Industrial Sorting, Color Detection, Height Sensing

