

Design of Part Detection Sensor Robot

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Abstract: We are working on sponsored project in "Badve Engineering Pvt.Ltd", the problem statement is the productivity and quality of product decreases mainly due to missing parts during assembly of different components on chassis, so we are analysing data and trying to reduce missing of certain parts on chassis in assembly line manufacturing process. Objectives of the project are to increase productivity and efficiency, to avoid dislocation and falling of objects during assembly, to manufacture optimistic product with less error. For this statement First we studied about different types of assembly line and how assembly line works. Then we observed how different parts are assembled to make the chassis. Then in a span of 1month we observed how many time parts get missed while assembly in a particular stage. Then we shortlisted top 10 parts which are Continuously being missed & studied on which stage maximum of the parts get missed. So, for this using try error method we implemented different methods like Sorting method, Barcode imposing method, lesser fixture cutting method but we came to know that these solutions are not fisible due to some limitations. So currently we are working on part detection sensing robot. Part detection Robot in chassis assembly is an automated robotic system that is used to detect and locate specific parts within an assembly process. This type of robot is typically used in manufacturing and assembly operations, where it can be programmed to identify specific parts and components within a larger assembly, such as bike chassis. The robot typically has a sensor or a camera mounted on its arm or body, which is used to detect and identify the parts. The sensor can be any type of sensor, such as a laser scanner, a vision system, or proximity sensor, depending on the type of parts being detected and the specific requirements of the application. Once the part has been detected, it gives signal to HMI and it moves to the next part. We have designed a3D virtual model of a system using Creo 7.0 software as a tentative virtual prototype.

Keywords: Robot.

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