

MEASURING ROBOT

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ABSTRACT

In this century, robots had been design to replace human. That is because robot can complete the work with more efficiency and accuracy than human. Human are easily distract by personal issues, emotional or environmental, but robot won't affect by these problems. In additional, robot is easily control and it won't disobey the command. Thus in the manufacturing field, robot had been used to measure some important part which cannot afford any error.

For my project, a measuring robot is design to measure the length, width, height, and volume of a box or cage. Since the measuring robot will perform measurement process in the box or cage, therefore four different sizes of boxes and cages had been built, which include reflective or hollow material. In the enclosed boxes or cages, the measuring robot will be able to take measurement with minimum or no error. The robot will process three methods of measurement processes.

First, the robot will be place at the edge of the box, the robot hand will extent to the top of the box, a ultrasonic sensor had used to detects any obstacle in front of it, if ultrasonic sensor didn't detect any obstacle, which meant the robot hand have arrive the top of the box, at the same time, the ultrasonic range finder will measure the height of the box. Then the robot hand will retrieve, which is using the ultrasonic range finder to let the robot arm retrieve.

After that, robot will perform the second process; robot will start moving forward, it was used to measure the length of the box, and a touch sensor will use to detect the wheel of the robot, which called it as wheel rotation sensor. An Infrared sensor will be equipped at the front of the robot, and it was used to detect the robot from an edge to another edge.

Then the third process will be performed where the robot will turn 90 degrees and moving forward, it was used to measure the width of the box. The measure process is same as the second process, which using the wheel rotation sensor and infrared sensor also. After these three processes, the programming in the microcontroller will calculate the volume of the box, and the results of volume, height, length, and width will show at the liquid crystal display.