

WIRELESS SENSED PRECISION AUTONOMOUS ROBOT FOR REALTIME APPLICATION IN SMT PLANT

Report of the project work carried out at Siddaganga Institute of Technology, Tumkur,
submitted in partial fulfilment of the requirements for the award of degree of

BACHELOR OF ENGINEERING

in

TELECOMMUNICATION

of

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

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TUMKUR-572103

2009-2010

ABSTRACT

Robots are replacing man in many applications. Most of them are used in industries for mechanical applications like moving incredible things, welding, soldering, drilling, milling, screwing, threading, filing, and making of accurate holes on optical grating materials. Some are used in shops, educational institutions and some are used in homes for household functions.

Many pick and place robots have been designed over years for different applications. This project includes a movable Pick and place robot meant for a particular application in SMT (Surface mount technology) plant. In SMT plant, manually watching and collecting the mounted PCBs' and moving them from one place to another place for further processing is risky & time consuming. So a 'ROBOT' which can do this work for man is built in this project.

The system consists of two parts. The first part (Reflow oven side) consists of automatic detection of PCB and transmission of signal for activating the Robot. The second part consists of the receiver and the robot which performs the task of picking the PCBs from reflow oven and placing them in racks.

This Pick and place robot finds application in various industries & can work in hazardous tasks. In this project, a robot arm with 3 degrees of freedom is designed. The arm can move in vertical and horizontal directions and can rotate in clockwise/anticlockwise directions up to 360° . It can also move in forward and backward directions precisely by a distance as specified in the program.