ROBOTICS FOR ARC WELDING

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"I declared that this thesis is the result of my own work except the ideas and summaries which I have clarified their sources. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any degree"

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ABSTRACT

The commercial robots are expensive for use in the educational institutions. Futher the operation of them will not leave room for experimentation, which is necessary in an educational institution. Futher a large number of components that can be used for building a robot are readily available in the market. Hence this project has been taken up to allow us to build a working robot using as many of the off the shelf components to provide he necessary flexibility. This would make it a low cost robot with enough flexibility for the students experiment the various functions of the robot.

The mechanical component of the manipulator is built with three axes, one rotary and two linear. This configuration is most common to be used as a material-handling device for machine tools. The rotary axis is achieved by making use of pneumatic rotary table and one linear axis is by means of a pneumatic cylinder. The second linear axis in the Z-direction is achieved by the use of an AC servomotor with a ball screw and linear motion elements to provide for accurate positioning capability.

The control of the robot is one of the crucial elements. A PC is used as a controller. The motion control is carried with the help of a motion control card. The control program is developed with the necessary functioning.

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