ROBOTIC ARM ON 5 DEGREE OF FREEDOM FOR SPRAY PAINTING OF MECHANICAL PARTS

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Design and development of 5 DOF prototype Robotic Arm for painting mechanical parts

ABSTRACT

Main objective of developing this project is to design the robotic arm to work on five degree of freedoms to spray paint the mechanical parts used in the industry and also to draw dedicated shapes on the drawing page with external human interface. This project is working on the principle of control system design of 5 motors and to make them work simultaneously by using the technology of training algorithms to train the robotic arm to follow the desired trajectory planning. Different technical model and Control algorithms are used to enhance the performance of the robotic arm in this Project. Its capability of reputation of tasks make it useful for the industry as there we are having number of similar products to proceed in stream.

The system needs first run by getting trajectory from the PC or from hardware joystick interface and will record the motion of trajectory and then process it with using algorithms to refine the motion repeated and pump with high pressure is used to create the paint to the nozzle and make robotic arm spray in desired area. The working of robotic arm is limited to the working envelope because of its structure design. So, robotic arm can cover the 170-degree angle for painting any object. And it can be a building block for the innovation in majority of areas in our daily life that is discussed in the future work.

The design aims to give fine controlin performing industrial tasks, while keeping up the straightforwardness of outline, scaling down, and daintiness are additionally accomplished.

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