



# AUTOMATIC DOUBLE AXIS WELDING MACHINE

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## **ABSTRACT:**

In our research titled double axis welding machine is being with an introduction to welding the various components automatically. Three-pneumatic cylinder and solenoid valve are provided. One cylinder is for the up and down movement, another one for arm lifting and one for the rotary motion.

**KEYWORDS:** *Double axis welding machine, pneumatic chamber, solenoid valve.*

## **I.INTRODUCTION**

Automation can be achieved through computers, hydraulics, pneumatics, robotics, etc., of these sources, pneumatics form an attractive medium for low cost automation. Automation plays an important role in automobile.

Nowadays almost all the machines are being automated in order to product the human being. The automobile vehicle is being automated for the following reasons.

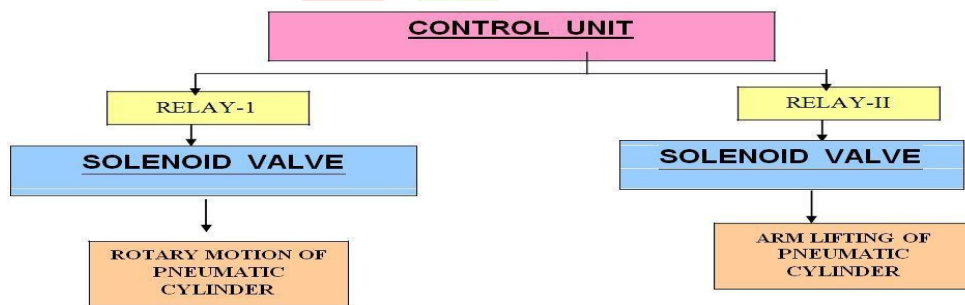
- To achieve high safety
- To reduce man power
- To increase the efficiency of the vehicle
- To reduce the work load
- To reduce the vehicle accident
- To reduce the fatigue of workers
- To high responsibility
- Less Maintenance cost

### I. DESCRIPTION OF ASSEMBLY

The assembly unit consists of a base block, cylinders, rack and pinion, base plate, tie rods, solenoid valves and gripper. Cylinder 1 is mounted on the base block with rack and pinion assembly connected with tie rods. The vertical cylinder is mounted vertically over the base plate to increase the height with a block and endplate provided at the end. The horizontal cylinder is mounted on the block of the vertical cylinder horizontally to increase length of the arm with a block and end plate provided at the end position.

### II. PRINCIPLE AND WORKING

The experimental setup consist of four cylinders, all are of double acting type. The cylinder1 is used to actuate rack and pinion assembly, piston rod of cylinder 1is connected to rack, which is meshed with the pinion. By operating the cylinder1, rack and pinion turns the whole assembly for 180 degree. By varying the length of the rack the turning angle can be altered. Vertical cylinder or cylinder2 is used to increase the height of the setup. The height is limited to piston rod length.



### COMPONENTS USED

- Welding machine
- Solenoid valves
- Pneumatic cylinders
- Rack and pinion gear mesh

- Tie rods
- Base plates

## CONCLUSION

Automatic double axis welding machine is in general a low cost intelligent robot which is portable in size and easily transportable. Since the project is based on the mechanical cum electronics, it is compact and swift and response. No external devices are used here to control it. The medium is air; the operation of the arm movement is fast which makes it a better option in industrial bodies for fast and reliable work output.

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