

Automatic Wall Painting Robot

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Abstract—During painting process, chemicals in the paint can cause hazards to the human painters such as eye and respiratory system problems. Paint rollers and Paint brushes were used to paint the wall from top to bottom. By repeating the process like pulling the roller and lifting the ladder may cause back ache. These reasons makes us to develop automatic wall painting robot. The robot consist of an arm which scan the wall vertically .IR sensors are fitted on the arm. It calculate the distance between wall and the spray gun. The microcontroller unit is designed to control the movement of the DC motor. The cost of the robot is low and reduces the work of the human.

Keywords:-Spray Gun, Microcontroller, IR Sensor.

I. INTRODUCTION

Construction and building work is one of the growing process in this industry. Construction is growing rapidly in this fast moving world. But the labour for this work is insufficient. During the painting in the tall buildings there occurs more risky problems than the work in the interior building. Due to increase in the education level people think that this kind of work is prestigious.

The construction work is mainly based on the workers .But there occurs the lagging. So the robotics and automation is developing more rapidly. With the help of the robot every process is getting easy. Here we develop a robot for the painting process.

II. LITERATURE SURVEY

Mohamed Abdellatif, Here the author described the working of the autonomous wall painting robot. The conceptual design of a movable painting robot is used for painting interior walls of residential building. The robot uses roller fed with liquid paint and keeps contact with the wall surface. The robot enables the roller to scan vertically as well as horizontally to the painted walls. The robot can maneuver to adjust itself in front of the wall.

Dhaval Thakar, Chetan P. Vora, In this paper they explained that the workers cannot manage robotic arrangement for higher efficiency so the rise of the such process had been made which is affordable, give better accuracy, consume minimum time for coating so they developed such mechanism which coat the object with the dipping technique having semi-automatic arrangement which is suitable and which can be valuable for small and medium scale industries.

Takuya Gokyu, Masayuki Takasu, Sumio Fukuda, The authors have shared that construction of Wall-Surface Operation Robot. plan to automate and increase the efficiency a series of restoration they plan to automate and increase the works by cleaning task . For the picture painting tile separation is done with single and multi colour.

PalJohan& Jan Tommy Gravdahl, here the author explained by increasing the speed in the standard manipulator. They used to identify the error in the direction which will not

improve the quality of the paint. Then they explained that by keeping higher constant velocity throughout the orbit

guaranteed constant paint coating and substantially decreased the time needed to paint the wall.

III. PROPOSED METHOD

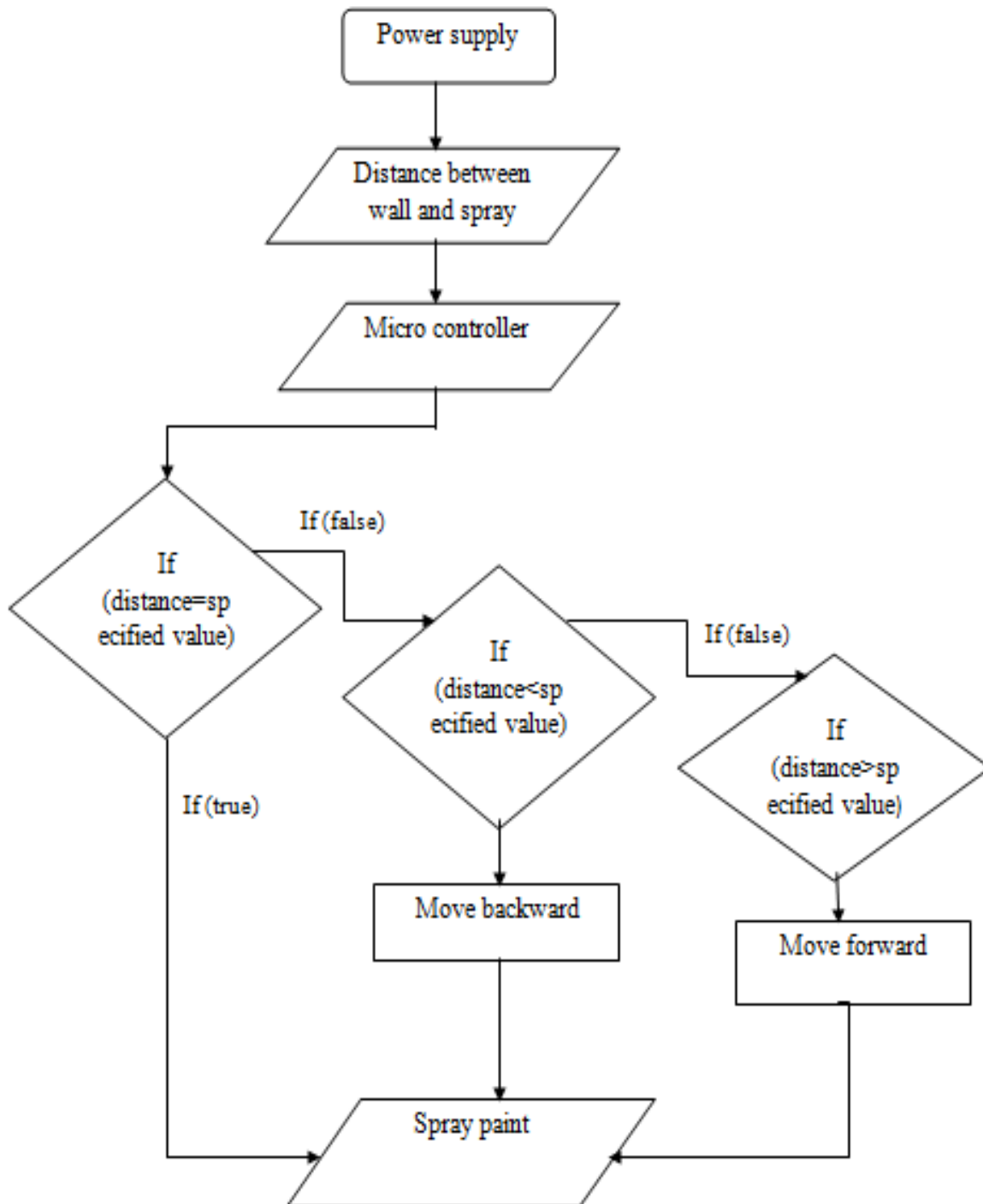


Fig. 1: Flowchart of Automatic wall Painting Robot

Power supply is provided. Distance between wall and the robot is calculated. If the distance between wall and robot is equal to specified value, then painting process starts. If distance between wall and robot is greater than specified value robot moves forward until both the distance are equal. If the distance between wall and robot is lesser than specified value robot moves backward until both the distance are equal and then painting process starts.

IV. BLOCK DIAGRAM

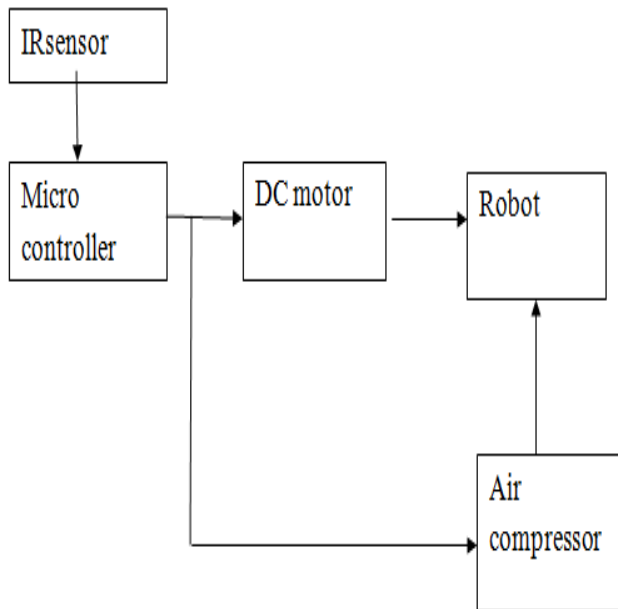


Fig. 2 Block Diagram

V. WORKING

Set the distance of wall in control unit of the robot using Keypad interface. The distance moved by robot is measured using IR sensor connected on the wheel of the robot. Robot is derived using dc motor. If the distance is equal to specified value(pre-defined value programmed in micro controller), then robot is activated and process of painting starts.

VI. CONCLUSION

As a result of literature survey it is obtained that automatic interior wall Painting can be done using roller and spray gun method. Comparing with roller, spray gun method is much efficient because in roller method there will be wastage of paint and it is hard to obtain fine coating. These draw backs

can be overcome by using spray gun technique. This spray gun method is even used in automobile industries to give fine finishing. Thus robot is designed with spray gun technology.

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