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Design & Fabrication of Automatic 2D Spray Painting Machine

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ABSTRACT: Now days world has to move on automation and this is important for the human. Internal and external decoration of home, office college, and the other building are most important part of our daily life of society. The main aim of design wall painting machine is to make wall painting easily and safely. Spray painting mechanism is the coast effective mechanism for wall painting machine. In paint contents harmful chemical that hazard to human health. Traditional painting is very boring procedure and consume more time so it irritates to the human beings. That why whole process is automated and its direct effect coasting of labour, save labour times. In this project we are opportunity to save times, reduce costing and also eliminate infection due to chemical in paint and also motivates the other development of automation in wall painting machines.

Keywords:

2D wall painting machine

Cost effective

Safety & Automation

1. INTRODUCTION

Automation in painting machine has been use in automotive industries but rarely use in large construction industries and house wall painting. Wall painting mechanisms is successfully introduced by mechanical industry for the painting of automotive part in industry. 2D wall painting machine by using remote control is not a complicated portal of machine is design to work cost effective and the equipment's cost is very low. In this Mechanism components use are rack and pinion, rope and pulley, shaft, DC motors, Battery, Wheels, Square pipe, switches, coupling etc. The machine is light in weight and also compact in design. This project offers to reduce human effort and also reduce the hazardous waste that could be damage the environment and effect human health to solve these problems which is connect with safety purpose we design this Automated 2D Wall painting machine. Working of 2D wall painting machine is very simple so no need of skill workers. The **Aim and Objectives** of this project is to minimize time requirement for painting work multi spray gun and auto filling system is used. To obtain work by a machine it is not required to

move the machine manually to paint the other wall. To minimize the paint requirement spray gun is used. To minimize human efforts the machine is automated and operated by electric supply. To obtain smooth cleaning surface air sprayer is used. To minimize the paint requirement spray gun is used. The machine to design work only for the interior wall painting. Due to smart and simple design controlling can be easily.

2. LITERATURE REVIEW

[1]M N Rudzuan, Development of Automated Spray-Painting System for Anti-Static Coating Process, IOP Conference Series: Materials Science and Engineering, et al 2019 IOP Conf. Ser.: Mater. Sci. Eng. 557 012001.This paper is presented to document a development process of automated system for the spray-painting process and for the purpose of advantage of implementation of automation to the production line instead of manual spray process and know-how of thickness control when applying three spray guns compared to single gun as normally implemented in automated spraying system. Three spraying could reduce the process time to spray the workpieces, in this case, is airplane wing's parts built from composite material. But these three guns automations system comes with challenging tasks in order to find an even thickness of overlapping spray pattern coming from these three separated guns. Ultimately, various studies on atomization parameters and other factors resulted in successful mass production.[2] Amgad Muneer, University Technology PETRONAS, Zhan Dairabayev, Design and implementation of automatic painting mobile robot, March 2021, IAES International Journal of Robotics and Automation (IJRA) 10(1):68-74, DOI:10.11591/ijra. v10i1.pp68-74 Wall painting is a repetitive, stressful, and hazardous process that makes it an ideal automation case. In the automotive industry, painting had been automated but not yet for the construction industry. However, there is a strong need for a mobile robot that can move to paint residential interior walls. In this study, we aim to design and implement an automatic painting mobile robot. The conceptual design of the proposed wall painting robot consisting paint mechanism with a spray gun and ultrasonic sensor. The spray gun is attached to a pulley mechanism that has linear motion. The ultrasonic sensor is used to detect the spray gun when it reached a certain limit. The DC motor rotates clockwise and counter clockwise based on the ultrasonic sensor condition made. The experimental results indicate that the robot was able to paint the walls smoothly vertically, and horizontally. The spraying gun structure's speed is at a tolerable speed of 0.07 m/s, which could be increased, but to provide high-quality painting without any gaps, the current speed was selected as the most suitable, without any harm to the working process.[3] Kartik Madhira, Sandip Mehta, Rahul Bollineni, Dishant Kavathia, Nirma University, AGWallP-

(Automatic guided wall painting system), November 2017, DOI: 10.1109/NUICONE.2017.8325614 In this paper author presented a detailed outlook of the AGWallP, a spray paint based automatic wall painter with remote input from the user. The AGWallP prototype was designed and manifested with due-deliberation to mechanical and electronic paradigms. The system has turned out to be low cost yet highly effective automatic painting mechanism at an impeccable rate of 100m2/hour. [4] Peng Xu et al 2019 IOP Conf. Ser.: Mater. Sci. Eng. 612 032067, Experimental Design and Spray Technology Research of Ship Paint Spraying Robot, IOP Conf. Series: Materials Science and Engineering 612 (2019) 032067 IOP Publishing doi:10.1088/1757-899X/612/3/032067A wall climbing robot for ship painting is designed. The robot is the separation of the paint output device and the main machine of the painting equipment to realize the painting operation of the wall climbing robot. The test environment and test method design of the robot are introduced in detail, and the painting process of the robot is verified. On this basis, the thickness of paint film and the related aspects of spraying process are studied, so as to eliminate the random error caused by experience and technical techniques, and to achieve the established film thickness and the stability of paint film coating. Improve automatic spraying process and labour productivity. [5] Mr. Sagar R. Wankhede, Prof. V.A. Kane, International Journal of Research in Aeronautical and Mechanical Engineering A Review on Automated Storage & Retraival System (Asrs) ISSN (ONLINE): 2321-3051In industry most of productive time is consumed in material handling and storage, it is necessary to automate the material handling & storage. Automated storage & retrieval system (ASRS) is one of the technologies used to store & retrieve material, tools, consumable products, etc. This paper Summarizes the various components in an automated storage and retrieval system. This paper takes a review on improving throughput by Analysing storage, retrieval and dwell point strategies. This paper is on both a mathematical and a physical model of ASRS based on an industrial locality. This facility will provide capability of testing both mathematically and empirically a variety of ASRS control strategies including: dwell point, travel type, control, continuous or single operation, retrieval, and storage strategies.

3. CONCLUSION

The automatic wall painting machine has been designed and fabricated for painting walls safely smoothly and easily. Painting interior walls of industries and houses can be paint cost effectively and automatically so reduce time. It also reduces the human power and labour cost. Its opportunity to save environment from hazardous waste, by reducing wastage of chemical paints.

4. REFERENCES

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