

Material Handling Robot

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ABSTRACT

In this paper, material handling based systems used in Flexible Manufacturing Systems. In industry when a manpower are works on some project for that purpose they need a material which is required for project, so we cannot get materials and do the work. For getting material some manpower are there to give the material to workers. but so many times worker have to repeat their task or at some specific time worker get tiered or worker cannot carry heavy weight, so replacement of that we are going to implement a material handling robot(AGV).this robot will transport a material to the destination with accuracy , safety, and speed. so AGV is good for material transporting and material handling process.

KEYWORDS: Raspberry pi, automated guided vehicle, command, material.

1. INTRODUCTION

AGV is a robot which is operated on battery and wireless of computer guided also it is material handling, on the basis of that we gave the name to our project is Material Handling robot. we can also called LGV because some AGV are worked on LASER scanning. Majority demand of AGV is in warehouses. Now a day's everyone focuses on the safety ,efficiency, accuracyof the product, that all parameters satisfying in material handling robot. our material handling robot is driverless vehicle which is working properly on fixed path. Its capabilities are receiving command and performing that task in particular time period is very good.Material handling skill are improved by AGV material handling robot. In a traditional warehouse, human safety lead on the productivity. because of navigation module material handling robot works properly in work spaces.

2. RELETED WORK

This section discusses the most closely related, and then provide a service between the related work and our system. material handling robot is like conveyor but our robot is more efficient an also our robot cannot handle a work like conveyor. an material handling robot is a driverless vehicle on factory floor. This can be achieved by a laser scanning, which the vehicle can sense and follow.It is useful to transport a material on required instruction on the basis of fixed path by controller. our robot have a navigation modules to propagate the route ,and also having a safety sensors for obstacles detection

3. METHODOLOGY

A material handling robot uses in flexible manufacturing systems.robots were mostly used at manufacturing systems, but now a days we can use a material handling robot in various applications. such as warehouses, container terminals and transportation systems. This paper discusses literature related to different methodologies to optimize AGV systems for the two significant problems of scheduling and routing at manufacturing, distribution, transshipment and transportation systems .

3.1 Benefits of Proposed System:

- 1) Increase safety
- 2) Increase accuracy
- 3) Reduce labor cost
- 4) Increase productivity
- 5) Modularity

3.2 Modules of the project:

AGV system has developed into branch of logistics system and undergone the trend of industrialization. Hardware and software architecture, at the same time, each module of material handling robot system is designed. Finally, experimental verification of the reliability and stability of material handling robot is carried out, and the result is it meets haul position accuracy in clever warehouse., AGV automatic handling system has the merits of good reliability, high transport efficiency, fully automatic operation, high adaptability for material low labor costs, and convenient interface with other information systems Compared with other

material handling systems. As an automatic handling robot in intelligent warehouse, AGV is the automation, intelligent abstract of engineering warehouse, and the link between automated storage area and electronic tag picking constituency. AGV is a necessary tool for the automation of automatic warehouse.

3.3 Flow Chart

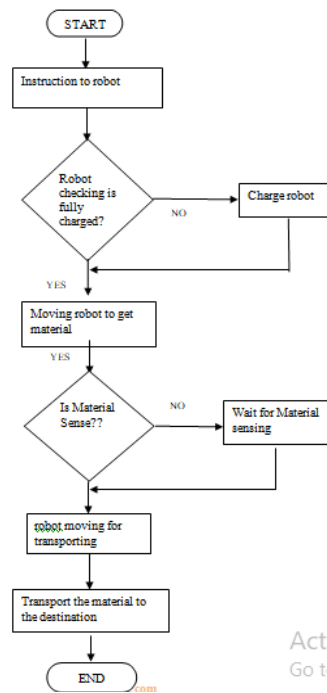


Fig. 1: Flow Chart

4. EXPECTED EXPERIMENTAL RESULT

Transponders are embedded in the floor of the work place. The material handling robot uses these transponders to verify that the vehicle is on course. A gyroscope is able to detect the slightest change in the direction of the vehicle and correct it in order to keep the AGV on its path. When we instruct to material handling robot at that time robot will check first of all robot is fully charged or not? If robot is not fully charged then robot will go to the battery charging station and charged fully. After that robot will move for the material. By using weight sensor when material is sensed at that time robot will move for the destination. But if material is not sensed by weight sensor so material handling robot will wait for sensing the material. After that robot will follow the safe path by using SLAM algorithm and robot will transport the material from one place to another place to the exact destination. An AGV system, or automated guided vehicle system, otherwise known as an automated guided vehicle, autonomous guided vehicle or even automatic guided cart, is a system which follows a predestined path around a facility. An AGV system is an excellent addition to any busy operation in the manufacturing industry.

5. CONCLUSION

Hence from this we conclude that the material handling robot is very efficient for material transportation. Within a time our robot is doing his work properly, after getting a command from controller our robot is moving to get a material whenever material is sensed by sensor robot will move for transportation very accurately with safety.

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