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Order Collecting Robot with Automatic Allocation

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Abstract: In Order Collecting Robot with Automatic Allocation System, Robots are used for collect different type of product in large warehouse. These robots also increase the speed of order fulfilment. Also Internet of Things is connected to internet through all kinds of sensing devices. In existing system robot collect the product from different sections but there is one problem to give instructions for path finding to the robot again and again. There is one drawback of existing system. But in propose system we overcome this drawback. The robot can collect order automatically without giving any instruction about path. Hence, robots can find path in large warehouse automatically without any interrupt. The routing algorithm (that computes the overall task execution time and the minimum global path of each AGV using a topological map of the warehouse), the local path planning algorithm (based on A* it searches for the local minimum path between two nodes of the warehouse topological map), and an auto-localization algorithm (that applies an Extended Kalmar Filter - EKF - to estimate the AGVs actual positions). In order to validate the algorithms developed, several tests were carried out using the simulation software Player/Stage. The results obtained were encouraging and the router developed was able to solve traffic jams and collisions, before sending the final paths to the robots. In a near future all algorithms will be implemented using mini- robotic forklifts and a scaled environment built in our lab.

Keywords: Internet of Things, Path Finding, Path Direction Envelop Algorithm, Android Application, Server etc.

I. INTRODUCTION

Today's world is the world of Automatic machines. ROBOTICS is the branch of science that realizes such machines. Now a day's robotics is widely used in industrial and research areas. Robotic plays an important role in Automation. They are now pervasive in almost every field. In this project Robots are used for collect different type of product in large warehouse. This robots also increase the speed of order fulfilment. A Robot is any machine which is completely automatic, i.e. it starts on its own, decides its own way of work and stops on its own. It is actually a replica of human being, which has been designed to ease human burden. It can be controlled pneumatically or using hydraulic ways or using the simple electronic control ways. The first industrial robot was Animates built by George Devil and Joe Engel Berger in the late 50's and early 60's any robot is built on 3 basic laws defined by the Russian Science fiction author Isaac Asimov: A robot should not harm the human being directly or indirectly. A robot should obey human orders unless and until it violates the first law. A robot should protect its own existence provided the 1st two laws are not violated.

II. PROPOSED WORK

In our project we are work on Path finding Robot

A. Finding Automatic Path

In this system we used automatic path finder robot which is less time consuming than manpower.

B. Continuously Collecting Order

This robot collect order from large product warehouse like D. mart Robot can collect randomly product item which is difficult and confusing for human being.

C. Warehouse Management

The management of large warehouses is very hard so using Order collecting robot we easily manage big warehouses.

III. METHODOLOGY

A. After the detail literature survey through the books, periodical, journal, magazine, websites. The idea of the project is well defined.

B. The logic is derived for the intelligence of the robot. It is programmed and burn it to the Arduino by using the software Arduino® 1.65.

C. The accuracy and viability of the program and electronic components is tested in the simulation software Proteus®.

- D. After the successful simulation result it is implemented in the hardware.
- E. After the finishing the programming, electrical and electronics part, the stable, reliable and flexible mechanical design and fabrication is completed.
- F. Finally system is tested and encountered error is omitted.

IV. SYSTEM ARCHITECTURE

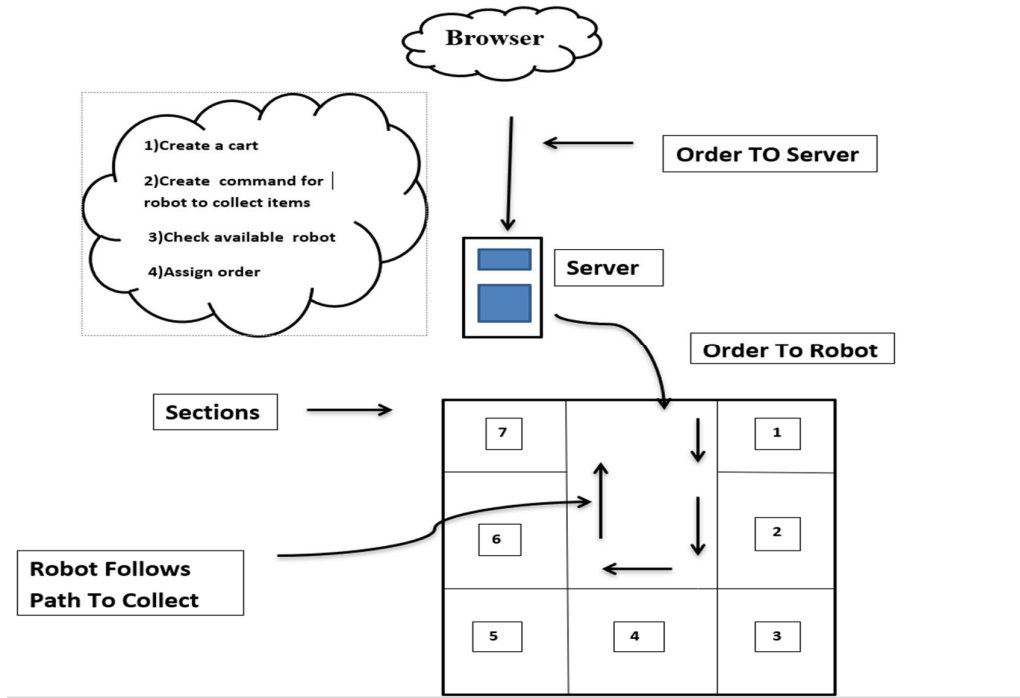


Fig.4 System Architecture

V. ADVANTAGES

- A. It can be used for automatic path finding and order collect.
- B. This system can also be used to real time processing
- C. Warehouse automation however you can keep your machines running for as long as you want without incurring an extra cost.
- D. Improved management and strategies for collection various type of product.

VI. SOFTWARE & HARDWARE REQUIREMENT

A. Software Requirement

- 1) Java
- 2) Python

B. Hardware Requirement

- 1) Microcontroller
- 2) Arduino
- 3) DC motor
- 4) IR Sensor
- 5) Bluetooth

VII. ANDROID APPLICATION (OPERATING SYSTEM)

Android is a mobile operating system developed by Google. It is based on a modified version of the Linux kernel and other open source software, and is designed primarily for touchscreen mobile devices such as smartphones and tablets. In addition, Google has further developed Android TV for televisions, Android Auto for cars, and Wear OS for wrist watches, each with a specialized user interface. Variants of Android are also used on game consoles, digital cameras, PCs and other electronics.



Initially developed by Android Inc., which Google bought in 2005, Android was unveiled in 2007, with the first commercial Android device launched in September 2008. The operating system has since gone through multiple major releases, with the current version being 9 "Pie", released in August 2018. Google released the first Android Q beta on all Pixel phones on March 13, 2019. The core Android source code is known as Android Open Source Project (AOSP), and is primarily licensed under the Apache License.

Warehouse

Enter order to collect

Item 1:

Do you want to add pencil ?

item 2:

Fig. 7.1 Order Collect 1

Warehouse

Enter order to collect

Item 1:

pencil has added.

item 2:

OK

Item 3:

Do you want to add colgate ?

Item 4:

Fig. 7.2 Order Collect 2

Warehouse

Enter order to collect

Item 1:

pencil has added.

item 2:

OK

Item 3:

Do you want to add colgate ?

Item 4:

Fig. 7.3 Order Collect 3

VIII. FINAL RESULTS

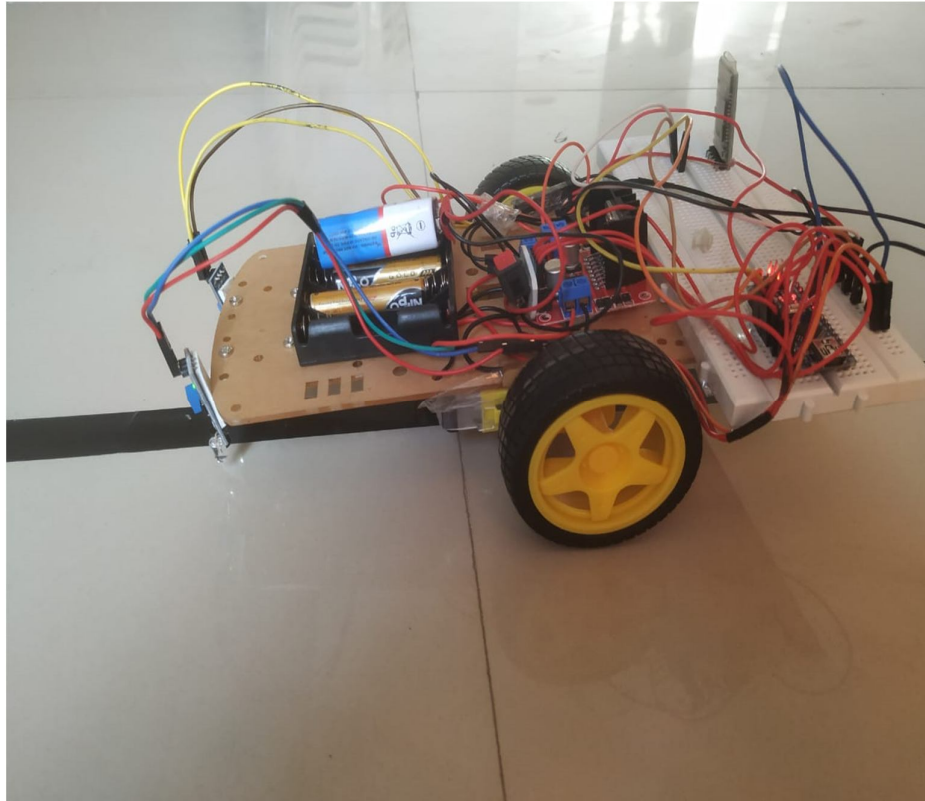


Fig. 8 Order Collecting Robot

IX. CONCLUSION

In our project Robot will automatic path find and continuously collects the product in large warehouse of different section. The main aim of project it utilise robot and conveyer that greatly increase the speed of order fulfilment.

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