

Commendary Cellarius

K.Anguraj¹, M.Bavani Devi², S.Sathyapriya³, and P.Shalini⁴

¹Assistant Professor, Department of Computer Science and Engineering, Kongunadu College of Engineering and Technology, Trichy.

²⁻⁴UG Scholar, Department of Computer Science and Engineering, Kongunadu College of Engineering and Technology, Trichy

anguraju.k@gmail.com¹, bavaniperiyannasamy@gmail.com², sathya21097@gmail.com³, shalinip101998@gmail.com⁴

Abstract—This project describes the food supply delivery within the restaurant. The tablet is attached with the customer table contains the android application with all the menu details of the restaurant. The customer tablet, kitchen display and the cashier counter connects directly with each other through Wi-Fi. This wireless application is user-friendly to choose the menu. The line following robot is sensor based that approach uses various kinds of sensors such as IR sensors, RGB sensor and ultrasonic sensors. IR sensors are generally used for measuring the difference in reflectivity of surfaces depending on the properties like color, roughness etc. The path can be visible like a black line on a white surface. Sensing a line and managing the robot to constantly running their path. This robot was developed based on a sensor based system to navigate the robot through a black line marked in the white surface. It also extracted some features in the sensor to follow a line with automatic color detection. By using the color detection, the line follower detects the table number and supplies the food items then it wait for the response form the customer. By using this cellarius, the efficiency and accuracy for restaurants by saving time, reduces manpower.

Index Terms— Cellarius, RGB sensor, IR sensor, ultrasonic sensor.

I. INTRODUCTION

The cellarius having ability to choose a desired line autonomously. The robot can differentiate among various colors and choose a desired one to find its target. This robot can be considered as a true autonomous line follower robot having the ability to detect presence of obstacle on its path. A powerful close loop control system is used in the robot. The robot senses a line and endeavors itself accordingly towards the desired target by correcting the wrong moves using a simple feedback mechanism but yet very effective closed loop system. The path can be visible like a black line on a white surface (or vice-versa). Sensing a line and while constantly correcting wrong moves using feedback mechanism forms a simple yet effective closed loop system. This robot was developed based on a vision based system to navigate the robot through a black line marked in the white surface. It also extracted some features in the sensor to follow a line with automatic color detection and follow that color in white surface. This report is intended to describe the information regarding the project. It explains the requirements, the techniques and technologies used, design and implementation, details, problems faced, and future improvements of the project.

II. OBJECTIVE

The objective of the project is CELLARIUS having the ability to choose a desired line among multiple lines autonomously. Every line has different colors as their identities. The robot can differentiate among various colors and choose a desired one to find its target. Unlike any other simple line follower robot, this robot can be considered as a true autonomous line follower robot having the ability to detect presence of obstacle on its path. A powerful close loop control system is used in the robot. The robot senses a line and identifies itself accordingly towards the desired target by correcting the wrong moves using a simple feedback mechanism but yet very effective closed loop system and cellarius can find their destination using the RGB sensor. Using this RGB sensor the cellarius can stop at their destination. The robot is capable of following very congested curves as it receives the continuous data from the sensors

Sensing a line and managing the robot to constantly running their path. This robot was developed based on a sensor based system to navigate the robot through a black line marked in the white surface. It also extracted some features in the sensor to follow a line with automatic color detection. By using the color detection, the line follower detects the table number and supplies the food items then it wait for the response from the customer.

A. Robot with IR sensor

A line following robot is a robot that basically follows a specific line. This line following robot is sensor based. Sensor based approach uses various kinds of sensors such as IR sensors. IR sensors are generally used for measuring the difference in reflectivity of surfaces depending on the properties like color, roughness etc. Which is this line follower is based on. The path can be visible like a black line on a white surface (or vice-versa). Sensing a line and maneuvering the robot to stay on course, while constantly correcting wrong moves using feedback mechanism forms a simple yet effective closed loop system.

B. Ultrasonic is attached to detect the obstacle

Distance measurement system using ultrasonic waves and interfaced with arduino. We know that human audible range is 20 Hz to 20 kHz. We can utilize these frequency range waves through ultrasonic sensor HC-SR04. The advantages of this sensor when interfaced with arduino which is a control and sensing system, a pro per distance measurement can be made with new techniques. This method of measurement is efficient way to measure small distances precisely. The distance of an obstacle from the sensor is measured through ultrasonic sensor

C. Add the RGB sensor

The light sensor works by shining a white light at an object and then recording the reflected color. It can also record the intensity of the reflection (brightness). Through red, green and blue color filters the photodiode converts the amount of light to current.

D. Give the command to the Cellarius

The command should be given to cellarius based on the manual process by the use of button given in the robot. The button number should be given based on the table number in the hotel.

Detecting the color of a given object means to establish the values of these fractions. For this purpose the object is lighted with white light and then we measure separately the intensity of the red, blue and green radiations reflected by the object. One of the cheapest color sensors is the TC 230. It contains four types of photodiodes sensitive to red, blue, green and white light and four white led for lighting the object.

III. CONCLUSION

We proposed the robot that follows a path and avoids the obstacle which comes in its path. This robot is introduced because in many of the hotels we have seen that food items which they have to move from one place to another place which is not possible without the help of machines. With this we got idea and we introduce the robot named as cellarius with obstacle avoidance robot using Arduino. Cellarius (Line follower robot) is a system which traces white line on a black surface or vice-versa.

REFERENCES

- [1] International Journal of Engineering Research in Electrical and Electronic Engineering (IJEREEE) Vol 4, Issue 2, February 2018 Line Follower Alphabet Using Arduino Microcontroller M. Srilekha
- [2] Line Following Robot With Color Detection, Authors : Md. Risat Abedin, Faysal Alam, Ajwad Muhtasim Dip, Department of Electrical & Electronic Engineering Ahsanullah University of Science & Technology

- [3] Kriti Bhagat, Saylee Deshmukh, Shraddha Dhonde, Sneha Ghag publications of International Journal of Science, Engineering and Technology Research (IJSETR), Volume 5, Issue 2, February 2016.
- [4] Subhranil Som, Arjun Shome by publication Subhranil Som Int. Journal of Engineering Research and Applications, ISSN: 2248-9622, Vol. 4, Issue 6 (Version 3), June 2014.
- [5] M. S. Islam & M. A. Rahman published by Asian Journal of Applied Science and Engineering, Volume 2, No 2 (2013).
- [6] Prananjali Koppad, Vishnu Agarwal published by International Journal of Engineering Research & Technology (IJERT), ISSN: 2278-0181, IJERTV3IS090023 Vol. 3 Issue 9, September-2014
- 7. S. Akash, Bibek Kabi, Mr. S. Karthick published by International Journal of Recent Trends in Engineering, Vol 2, No. November 2009.
- 8. Juing-Huei Su, Chyi-Shyong Lee, Hsin-Hsiung Huang, Sheng-Hsiung Chuang & Chih-Yuan Lin published by World Transactions on Engineering and Technology Education 2010 WIETE Vol.
- [8] S. Sangeetha P. Dhivya Bharathy, P. Preethi, K. Karthick, Hand Gesture Recognition for Physical Impairment Peoples, SSRG International Journal of Computer Science and Engineering (SSRG-IJCSE), pp. 6-10, Volume 4 Issue 10, October 2017.
- [9] Saravanan Kumarasamy and Dr. R. Asokan An Efficient Detection Mechanism for Distributed Denial of Service (DDoS) Attack. International Journal of Computer Science, Engineering and Information Technology (IJCSEIT), Vol.1, No.5, December 2011.
- [10] Dr. Raghavendran P. S., Dr. Asokan R., Vishnupriya M., Enhancing the security against Flooding Attack in MANET for Medical Application, Asian Journal of Research in Social Sciences and Humanities, Vol. 6, Issue 6, 2016.
- [11] R. Pavithra, Dr. R. Asokan, K. Baskar, Improving Privacy And Dynamic Updation Using Ranked Search Over Outsourced Cloud Data, International Research Journal of Engineering and Technology (IRJET), Volume: 03 Issue: 10, Oct-2016.
- [12] Saravanan, K; Asokan, R; Venkatachalam, K., Neuro- Fuzzy Based Clustering of Distributed Denial of Service (DDoS) Attack Detection Mechanism, International Information Institute (Tokyo). Information; Koganei Vol. 16, Iss. 11, (Nov 2013).
- [13] Vellingiri, J.; Balambigai, S.; Saravanan, K.; Asokan, R., Secure Real Time Web Based Electrocardiogram Monitoring System for Improved Healthcare, Journal of Medical Imaging and Health Informatics, Volume 6, Number 3, June 2016, pp. 774-778(5).
- [14] M. Bhuvaneshwari, Dr. J. Yogapriya, Decentralized, Energy-Efficient, Low Latency and Less Homogeneous Settings based Workload Management in Enterprise Clouds, International Journal of Scientific Engineering and Research (IJSER), Volume 4 Issue 10, October 2016.