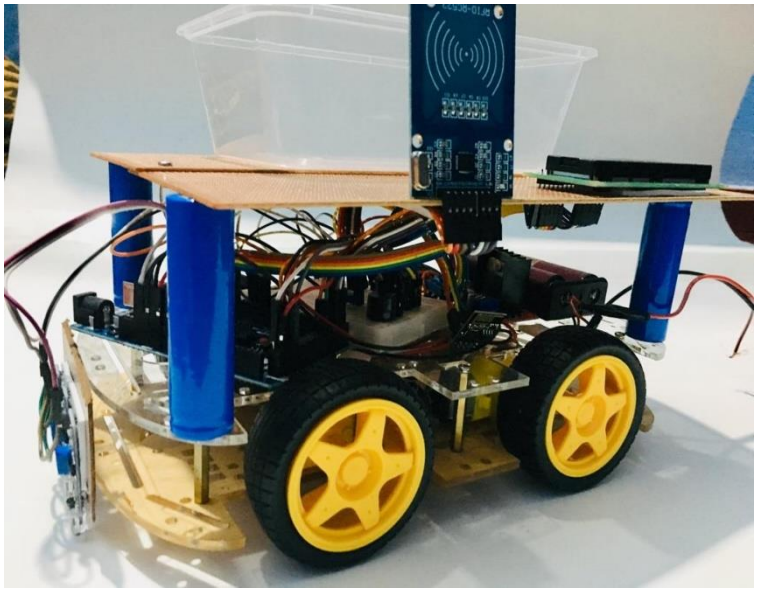
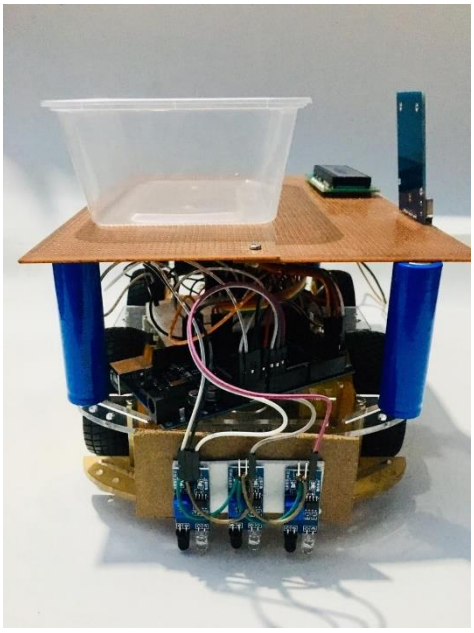


Automatic Book Carrying Robot

USER MANUAL



Unified Project
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System Overview

- Our system, the Automatic Book Carrying Robot is an embedded product which is designed for the specific purpose of minimizing the workload of workers in the library. It carries the books and works as a line follower that follows a particular shortest path to reach the appropriate destination where it should bring the books. Our system is capable of carrying multiple books simultaneously to their appropriate destination to which each book belongs to in the library. It is very useful for a librarian to manage the library efficiently within a limited time. This manual contains all the specifications as a user you have to follow to handle our product effectively.

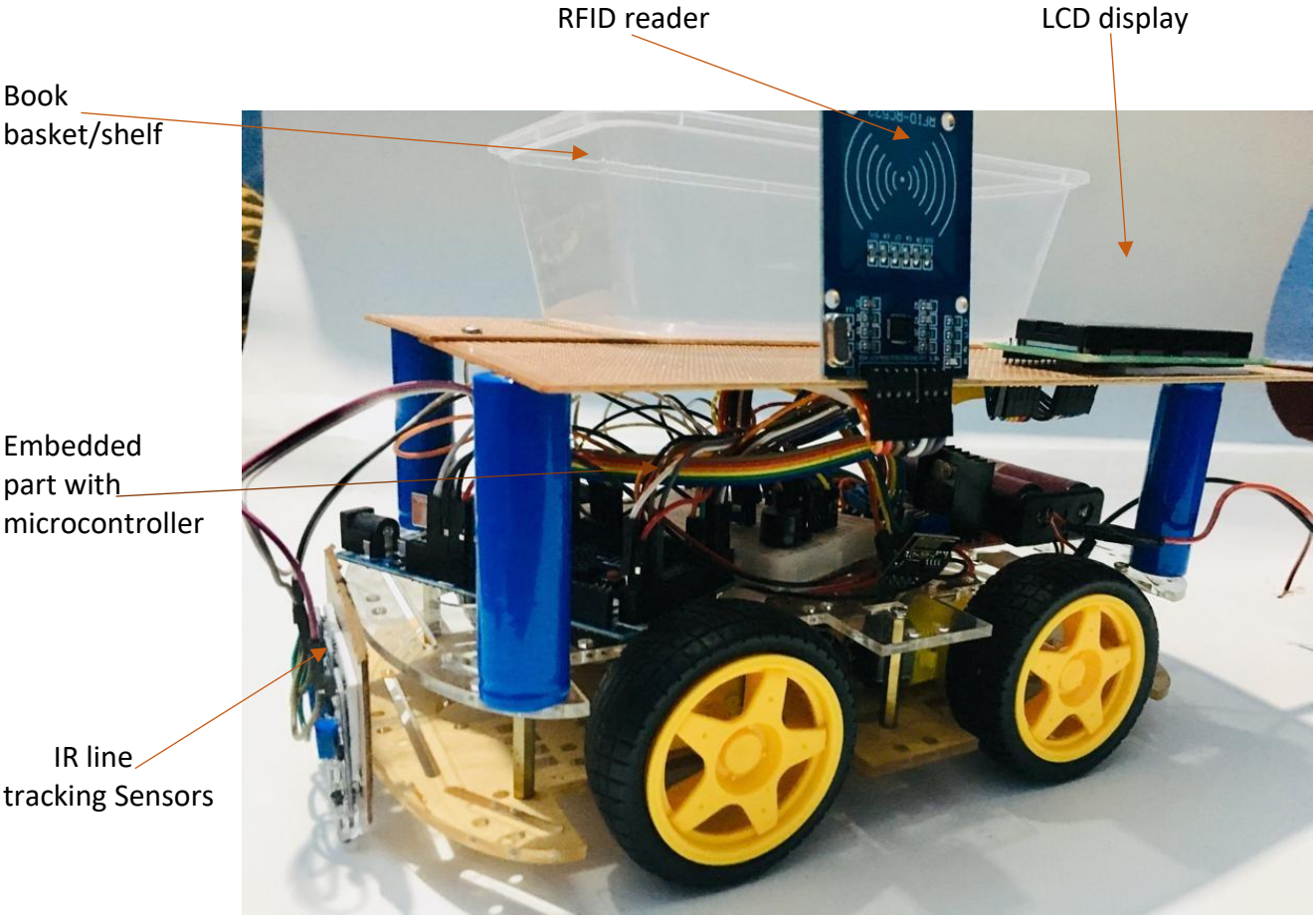

Figure1: Overall view of the line following robot

- Some recommendations for the users are also included in this manual to securely handle our product. Then, you can go with the manual and follow the step by step procedures and have good time with our product. Don't be silly when using the product and handle it efficiently to get the optimum output.

Follow these steps:

1. First, identify the switch in the line following robot and turn it on to give power to the entire system.

2. Then, wait until the embedded system connects to the server. It may take some time for the connection to be established. Meanwhile “Connecting to the server….” message is displayed on the LCD.

3. Next, keep your books ready to scan and scan the RFID that is attached on each book using the RFID reader shown in figure 1 to get it identified by the robot. This setup is able to scan one book at a time.

4. After that, keep the books carefully in the appropriate book shelf that is placed just above the robot as shown in figure 1.

5. “Book Received” message is displayed on the LCD after each book is scanned, and the server is updated indicating that the particular book is received with the help of the Wi-Fi module.

6. After you finished scanning the limited no of books, you can see “Fully Loaded” message displayed on the LCD shown in figure 1. At that point of time you can stop loading the books.

7. The robot is capable of carrying a limited no of books. In this setup, the book basket has two shelfs, so, the robot is able to carry maximum two books in this prototype. When the books are fully loaded, the buzzer on the robot will give a sound.

8. Thereafter, Following the buzzer sound the line follower starts move from that starting point and follow the line using the shortest path to the identified destination which is displayed on the LCD.

9. Then the robot will reach the destination of a loaded book and wait until somebody press the button on the robot. After you take the book indicated by the led turned on and place it in the respective shelf, press the button.

10. After the button is pressed the robot will carry the remaining books to the next destination.

11. When the button is pressed at the final destination, finally the robot will return to the starting point.

12. You can repeat the above steps for the next trip of the robot.

Recommendations

- Recommended to be used in libraries or book stalls etc.
- Recommended to be used by an authorized person only like librarian in libraries.
- Don't overload the books on the robot even after the buzzer sound. It will harm the movement of the robot.
- Don't handle the robot roughly by pressing the button again and again or pressing the button hard. It will damage the button on the robot.
- If you find any problems with the connections or with the design of the robot Don't repair them yourself incorrectly. Please use the design manual when repairing for any clarifications.
- Once a week, polish the robot parts and check that all parts of the robot are working fine. Change the batteries if needed.
- Don't forget to keep the switch off when the robot is not in use. It will avoid the wastage of power.
- Don't misuse the robot for your own benefits.
- Altogether, use it efficiently effectively and securely to get the optimum benefit of this product.

"Thank You for Using Our Product"