2022 年臺灣國際科學展覽會
優勝作品專輯

作品編號　**100046**

參展科別　工程學

作品名稱　**Line Following Waiter Robot**

得獎獎項

國　　家　**Nepal**

就讀學校　**Brainycube Research Organization**

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關鍵詞　　**Arduino、Gear DC motor、L298N motor driver**

作者照片

Abstract:

Technology is erratic. We never know what could be the next big thing. Nowadays, IoT (the internet of things) has taken over the market. Every technology created nowadays is somehow related to IoT. You should manage to connect the IoT technology with a robust area of hospitality. Catering customers' needs during peak hours at any restaurant or cafe could get overwhelmed with hectic tasks such as taking orders, fetching water, and ordering meals. We created a raw model to accommodate the limitations of the human
mind. The technology-based IoT (Internet of things) can come in handy during hectic sessions. A Robot waiter is built from scratch using materials like Arduino (2), Gear DC motor (2), L298N motor driver (1), Ultrasonic sensor (2), IR sensor (2), Servo motor (4) HC-05 Bluetooth module. Desired orders are sent on a wireless network through the menu bar to the kitchen. Then, the robots transfer the food from the kitchen to the customers. The floor will be all white, while there will be a strip of black line to connect every sitting and the kitchen. For instance, if table number three is to be served, we click the number three in the app, which renders an obstacle in table 3. The motor barricades the robot, and the ultrasonic sensors sense it, and it stops. If anyone picks the plate, the ultrasonic sensor senses it, the blockage is removed, and the robot paces in the designated path. People visited the place more often to experience such stimuli. Using the robots attracted more customers and made the work very quick.
Keywords: Arduino, Gear DC motor, L298N motor driver, Ultrasonic sensor, IR sensor, HC-05 Bluetooth module, Servo motor

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1. A good research topic responding to the desired automation world. It is a good system integration work as well.
2. The performance of the system should be quantitatively validated. For example, how accurate is the line following of the robot (or how much the robot wiggles during motion)? What is the successful rate of serving the right table? When the robot stops, how accurate the stopping position of the robot?
3. The system can be improved for better serving quality. For example, the sound system to notice the customers that the food is on the way or the food is ready for pick up.