DE MONTFORT UNIVERSITY LEICESTER

Individual Project
ENGD3000

Project Specification:

Internet of Things restaurant waiting system

Module tutor:

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Brief description:

The project will be a collection of products that are internet of things enabled and can communicate between each other to allow faster ordering and a more direct pipeline to the kitchen. This will be done using a main hub - used by employees and chefs, an order taking product situated on each table – used by the customer and a robot capable of transporting the food from the kitchen/loading bay to the table.

Project aim:

To utilize IoT enabled products to minimize contact between restaurant staff with customers while also increasing the speed in which an order can get to the kitchen.

Objectives:

1. Develop a product capable of using voice recognition to take an order directly from the customer and send it over an IoT network.
2. Develop a robot capable of mapping and maneuvering around the restaurant while transporting food.
3. Develop a product capable of showing the kitchen incoming orders.
4. Have all these project components work together/communicate over IoT.

Brief plan of how to achieve these objectives:

1. Order taking product
    a. Get voice recognition working on either a Raspberry Pi or microcontroller.
    b. Create some software that can send a text version of the spoken order along with the table number and any other relevant information over an IoT network.
2. Food delivery robot
    a. Get a basic understanding of ROS.
    b. Prototype a drive setup that’s able to interface with ROS.
    c. Get mapping and spatial checkpoints working with ROS so the robot can move between predetermined points.
    d. Design a system to stabilize the food delivery tray against vibrations.
    e. Get the robot to move to the determined table that is given to it via the IoT network.
3. Kitchen display
    a. Create a system able to receive the sent-out order with the relevant information over the IoT network.
    b. Make a graphical display for this information for the chefs/employees to interact with.

Work package breakdown: