Restaurant POS system using Raspberry Pi

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Introduction:

The motivation behind this project was to create a low cost and efficient point of sale (POS) system which can be used in restaurants to offer customers an option to view menu, order items, receive bill on a touchscreen device on their tables. The system also displays the current order, table number, time of the order to another device used by the chef/cook in the kitchen. By this method, there will be less errors in order placement and getting orders to the right tables.

Operation:

The whole system consists of two Raspberry Pi s: One to place an order, the other to display order details to the chef and store the details (essentially a server). The GUI on both the Pi s are implemented using tkinter module of python. All other modules used are imported from python as well.

With the current system, we have successfully implemented features such as displaying multiple menu items (Drinks and Food) along with options to choose quantity, spice level & cooked level. The ability to store order information is set in place through the database. This can be further be used to suggest recommended dishes to returning customers automatically.

Challenges:

While trying to reduce the cost of a POS system with our device pair, we were facing the following challenges:

1. Creating a good GUI with multiple pages on a touchscreen.
2. The time constraint of the project
3. Creating a database to store order information and audio files.
4. Non-scalable nature of the current system due to the nature of the communication used.

Deliverables met:

At the end of the course project, we have successfully overcome challenges 1, 2 and partially with 3. We presented a demo of the working of our POS system where in, an order of 3 or less items of certain quantities (for simplicity) was chosen and ordered. The Kitchen display system was able to display the received order and its details. After the order was done cooking, when the chef checks the “Done” button, the bill was displayed on the Order placement system after clicking “Generate Bill”. When this bill screen is closed, the menu reappears for a new order.

Hardware Used:

Kitchen display system	Order placement system
LCD Display – 7 inch 800*480 touchscreen	Linux machine – to simulate another Raspberry Pi
Raspberry Pi with HDMI cable & Wifi Dongle	

Further Work:

The GUI created using tkinter is difficult to implement multiple menu pages, so an alternate method using CSS and html pages might be used for further improvement. With our system as a base, one can other functionalities such as pay using card swipe attached to the display, show offers and promotions, receive audio feedback, option to register as a member and store order details of registered customers to suggest recommended dishes next time they visit. With little more time and effort, these additional features can be implemented surely.