


Being the only canteen in SUTD, the canteen is always packed. During lunchtime, the Western stall's current order and collection system isn't the most efficient...



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It is difficult to call for order number and take new food orders from new customers at the same time. This causes great **disruption in workflow** for the canteen vendors.



Without a queue, some customers stand around the stall, resulting in human traffic **congestion** in the canteen.



Problems

Mr 273

Canteen vendors face much **inconvenience** when they have to constantly shout for customers like Mr 273, who don't pay attention to the collection number.



During peak periods, orders pile up and chefs cook food in batches. This results in **irregular waiting time** for customers and **orders getting mixed up or forgotten**.

The lack of a clear queuing system causes **much confusion** amongst new customers. They are unsure who is queuing to order and who is waiting for their food.

Canteen vendor will key in queue number and select the phone number to be tagged to, after the customer has placed their order. This input will be sent to firebase.

Canteen vendors no longer need to shout for customers to collect their order.

There is no congestion now that customers can wait at their seats.

On the customer end, customers will only have to key in their mobile number. The mobile number will be tagged to the queue and order number sequentially on firebase.

Whatsapp is the messaging platform used but future works will allow users to select which messaging platform they wish to receive their order notification from.

Western Stall

Mexican chicken chop	Spaghetti Chicken Chop	Aglio Olio
1	4	1
Chicken Cutlet with Fries	Sirloin Steak	Mixed Grill
3	1	2
Return		Submit

Enter order number

1	2	3
4	5	6
7	8	9
Back	0	Submit

Western Stall

Aglio Olio	Aglio olio
Spaghetti Chicken Chop	Spaghetti Chicken Chop
Spaghetti Chicken Chop	Spaghetti Chicken Chop
Mixed Grill	Mixed Grill
Sirloin Steak	Sirloin Steak

When new order comes in, the orders are automatically categorise the order based on item (in firebase) and sent to the screen in the kitchen.

Once the order is done, the chef can select the order prepared and select 'Submit' to complete the order. The food is ready for collection and the notification will be sent to the respective phone number.

Chefs have an easier time cooking as orders are optimised. They don't have to sort out orders and can focus on cooking quality food.

RPI is used to run the following:

- User interface
- Darknet Yolo
- Proximity Detector
- Sends information to firebase

Firestore

In Firestore, the order number and phone number of the customer will be sorted and grouped together based on order. Firestore stores this information neatly.

RPI is used to run the following:

- Chef display and interface
- Send completed orders to firebase
- Send number of people in queue
- Run code for sorting of orders in kitchen

Camera is installed at the front of the stall to count the number of people in the queue. When users enter '?' into whatsapp, Twilio will return the information to the user.

Passive Infrared (PIR) sensors are used to detect the proximity of a customer. When there are no customers, the screen will go to power saving mode.

Order number: 273
Mexican Chicken Chop
Your order is ready for collection!

When your order is ready, you will receive a notification to collect your food. Now you can sit back, relax, while your order is being prepared like a Diva!