



Faculty of Computer Science and Information Technology

## **Mobile POS for Food Court**

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Bachelor of Computer Science with Honors (Network Computing)

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# **Mobile POS for Food Court**

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## TABLE OF CONTENTS

ACKNOWLEDGEMENT .....	i
TABLE OF CONTENTS .....	ii
LIST OF FIGURES.....	iv
LIST OF TABLES .....	vi
ABSTRACT .....	vii
ABSTRAK .....	viii
Chapter 1: Introduction.....	1
1.1 Introduction.....	1
1.2 Problem statement.....	2
1.3 Scope .....	3
1.4 Objectives .....	4
1.5 Methodology .....	4
1.6 Significance of project .....	6
1.7 Project Outline.....	7
Chapter 2: Literature Review .....	8
2.1 Introduction.....	8
2.2 Review on Existing System .....	8
2.3 Comparison and Critical Review.....	17
2.4 Summary .....	20
Chapter 3: Methodology .....	22
3.1 Introduction.....	22
3.2 Methodology .....	22
3.3 Requirement Analysis.....	23
3.4 Mobile Application Design .....	28
3.5 Summary.....	41
Chapter 4 Implementation .....	42
4.1 Introduction.....	42
4.2 Required Components for Proposed Mobile Application .....	42
4.3 User Roles.....	43
4.4 System Interfaces for mPOS for Food Court .....	44
4.5 Summary.....	56
Chapter 5 Testing .....	57

5.1 Introduction.....	57
5.2 System Testing.....	57
5.3 Summary.....	59
Chapter 6 Conclusion and Future Works .....	60
6.1 Introduction.....	60
6.2 Objective Achievements.....	60
6.3 Project Limitation .....	61
6.4 Future Works.....	61
6.5 Conclusion .....	63
Reference .....	64
Appendices .....	65

## LIST OF FIGURES

Figure 2.1 The main menu of FoodZaps.....	9
Figure 2.2 The table menu in food ordering module of FoodZaps.....	10
Figure 2.3 The food eMenu of FoodZaps.....	11
Figure 2.4 The main menu of W&O POS mobile application.....	12
Figure 2.5 The customer module in W&O POS mobile application.....	13
Figure 2.6 The table status in W&O POS.....	14
Figure 2.7 The main menu of RPOS mobile application.....	15
Figure 2.8 The customer information of RPOS mobile application.....	16
Figure 3.1 Agile Model.....	22
Figure 3.2 System architecture for mPOS food court.....	25
Figure 3.3 Use case diagram for mPOS food court.....	26
Figure 3.4 Flow chart diagram for mPOS food court.....	27
Figure 3.5 The login page for mPOS food court.....	29
Figure 3.6 Control Panel for waiter.....	30
Figure 3.7 Table seats page.....	31
Figure 3.8 Food eMenu page.....	32
Figure 3.9 Summary of ordered food page.....	33
Figure 3.10 Billing page.....	34
Figure 3.11 Order receipt.....	35
Figure 3.12 Control Panel for kitchen crew.....	36
Figure 3.13 Food progress page.....	37
Figure 3.14 Control Panel for administrator.....	38
Figure 3.15 Employee's detail page.....	39

Figure 3.16 Food eMenu module page.....	40
Figure 4.1 Login page.....	44
Figure 4.2 Main Menu page.....	45
Figure 4.3 Table Menu page.....	46
Figure 4.4 Food eMenu page.....	47
Figure 4.5 Food Checkout Summary Page .....	48
Figure 4.6 Billing Page (Cash) .....	49
Figure 4.7 Billing Page (Sarawak Pay) .....	50
Figure 4.8 Progress Station .....	51
Figure 4.9 Settings .....	52
Figure 4.10 Food eMenu Listing.....	53
Figure 4.11 Add Food eMenu Page.....	54
Figure 4.12 Employee Listing .....	55
Figure 4.13 Add Employee Page .....	56
Figure 5.1 Summary of the outcomes from non-functional test.....	59

## LIST OF TABLES

Table 2.1: Comparison of feature between reviewed system.....	17
Table 3.1: Several type of hardware requirements.....	23
Table 3.2: Several type of software requirements .....	24
Table 3.3: Several type of other requirements.....	24
Table 4.1: Hardware requirements for proposed application .....	42
Table 4.2: Software requirements for proposed application .....	42
Table 5.1: Summary of the outcomes from functional test.....	58
Table 6.1: Achievement of objectives.....	60
Table 6.2: Several limitations in this proposed application.....	61

## **ABSTRACT**

*As in self-service mode of food court operation still can be considered as fresh and unique on Malaysia market, mostly the food court is still running on the traditional operation which is noting down the food orders by handwritten. However, this approach consists of few disadvantages. Although some tablet-based ordering systems are already released on the market, but for some reasons, the ordering systems are not met the requirements for setting up the self-service mode. A “so-called” self-service mode of food court operation is customers may serve their ordered food themselves without the aids of service crews. A systematic work flow of the food court operation is needed to fulfil the condition of building the self-service mode. The mPOS for food court which will be proposed in this project may fulfil all the requirements which are needed for self-service mode. From food ordering, printing order receipts, delivering ordered food, the working efficiency of the employees at the food court can be increased by utilising the mPOS for food court ordering system as compared to other existing order systems.*

## **ABSTRAK**

Kini, Medan Selera yang beroperasi secara layan diri masih dipertimbangkan sebagai bisnes baru dan unik dalam pasaran Malaysia. Kebanyakan medan selera yang masih beroperasi dengan cara tradisional iaitu, mencatatkan pesanan makanan dengan cara menulis. Cara ini terdapat beberapa kelemahan. Walaupun pasaran kini terdapat beberapa sistem secara tablet, tetapi ia masih tidak dapat memenuhi kriteria yang untuk membina medan selera yang beroperasi secara layan diri. Medan selera yang beroperasi secara layan diri membenarkan pelanggan dapat mendapatkan makanan yang dipesan oleh diri-sendiri tanpa bantuan pelayan medan selera. Prosedur kerja dengan cara sistematik merupakan satu saluran yang amat penting dalam membina medan selera yang beroperasi secara layan diri. mPOS for food court merupakan sejenis sistem yang akan dibincangkan dalam projek ini. Sistem ini dapat memenuhi semua kriteria dalam membina mod secara layan diri.

## **Chapter 1: Introduction**

### **1.1 Introduction**

POS, an abbreviation of point of sale, it defines the location where a transaction is processed and performed (Lightspeed, 2015). Therefore, every transaction is performed through the POS system. POS system, a computerized system which mostly will be used in retail store or restaurant to allow retailer or employee to conduct several actions such as performing transaction, tracking transaction history and analysing sales report. POS system requires some basic hardware such as computer, barcode scanner, receipt printer to perform daily actions. POS system is installed in computer with connected to barcode scanner and receipt printer for scanning the product and printing the receipt.

The current trend in enterprise life for implementing business operations is mobile application. Mobile application can be explained as the IT software which is developed for handheld devices like tablets and smartphones, with the installation of mobile operating system such as Android and iOS (Hoeleh and Ventakesh, 2015). With the aid of mobile application, it provides those organizations a mobility solution for carrying their business activities. This does help the organizations to be more productive and efficient, thereby somehow increasing the organizations' values, profits and reputations.

For the current food ordering system in food court, they are still using the paper and pen to take customer's order. By using this method, this could be leading to some unexpected

accidents occurred. For example, the stall owner lost his paper which already written down the customer's order on the paper.

The mobile POS system, a POS system which will be integrated in mobile application that installed in mobile device, which will be applied in the food court service, will provide a more systematic, reliable and efficient workflow in food ordering system. By using this system, the food court service crews are required to equip with a tablet and a Bluetooth portable thermal printer. They will use the Mobile POS app in the tablet for taking customers' order. After taken the order, customers could make the payment by using either cash or mobile payment such as Sarawak Pay. Then, service crew will print out the order receipt using the Bluetooth portable thermal printer. The order number is stated on the receipt. The order number is used for tracking their food status. In the meanwhile, when the service crew done the food order on tablet, the data will be stored in server and server will show the data on display screen for kitchen crews to prepare the foods. When their foods are prepared, the staff which serves at the self-service food counter will call their order number and customer will go and collect those foods at self-service counter.

## **1.2 Problem statement**

Nowadays, mostly food courts are still using the traditional way for ordering food. Customers will go through every food stall and look through their food menus. When they decided to take order from the stall, the stall owner will note down the order and customers' seat by using paper and pen. Then the stall owner will deliver the food to customer once the food ready to be served. It seems like a simple food ordering process. But, there still have some

problems will be occurred. For example, the stall owner will misplace the order list, or it goes missing, thus losing the customers' order. Furthermore, the stall owner does not successfully deliver the food to customer as sometime customer does not providing the table's number to them. These problems may cause stalls' reputation goes down due to service attitude. Besides that, there could maybe some food courts are starting to use the tablet-based food ordering system. As this method is still considered as new, the features in the food ordering system on the tablet are still incomplete. The current existing tablet-based food ordering systems only focuses on placing food order, and this causes them neglecting other features. One of the drawbacks for these systems is unable to make payment on the spot. For instance, after placing customer order, the service crew has to go to payment counter for printing the order receipt and then return the order receipt to customer. This could be a burden for service crew as they have to do the tasks twice and indirectly increasing their workload. Moreover, as mentioned as above, the stall owner will still deliver the food to customer no matter using traditional or new method of food ordering system. This also could be a disadvantage in food ordering process. The ideal solution is to accommodate a self-service counter which allowing customers to collect their food once their meals are ready to serve.

### **1.3 Scope**

- Specifically design the system for self-service food court
- Service crew and stall cooker will use the system
- Service crew
  - o Take customer's order
  - o Make transaction

- Print receipt
- Stall cooker
  - Read the food menu which ordered by customer in screen display
- Hardware which will be used in this system: tablets, Bluetooth portable thermal printer

## **1.4 Objectives**

- To develop a mobile POS system for improving the workflow efficiency in self-service food court
- To create mobile payment option in the system for promoting cashless payment
- To enable custom remarks on digital order sheet

## **1.5 Methodology**

Methodology can be defined as developing a project with the aid of theoretical analysis and systematic methods. In this project, agile methodology will be a good approach to complete the project as the advantage of this methodology is very flexible to modify. Agile model is a process model which combined with iteration and increment that focused on customer satisfaction and process adaptability (Poornima, Divya & Vignesh, 2016). Since the characteristic of agile methodology is easily adapted to change requirement, it enables to make a quick change in requirement if there have some unexpected scenarios happen in the project. This model consists of five phases which are Analysis, Design, Develop, Testing and Review (Osetskyi, 2017).

In Analysis phase, some of the existing similar systems will be compared and reviewed to understand the lacking in current existing systems. Those drawbacks will be proposed as new features in this proposed project. The functionalities of the proposed system will be planned in this phase after done analysis on the existing similar systems.

During Design phase, as previous iteration is completed, the system will start to design according to the analysis result. This phase plays as a crucial part in the development of the system. The workflow and the user interface of the proposed application will be carried out in this phase. The user interface of the proposed application will be carried out by using adobe xd software

In the next phase, coding will be involved to transform the physical and logical design which mentioned in previous stage into a workable application. The programming language which will be implemented in this project is java. Therefore, a good understanding on the system design is essential in this stage as this could help in fast development.

After the code is implemented into the system and it is successfully developed, the testing phase is needed in development. A test run on the system is needed to be performed to assure the system is a 'bug free' system. Thus, a few test cases will be conducted to measure the functionalities in the system are working perfectly.

There will have some feedbacks after conducting test run on the system. These feedbacks are used to improve and enhance the system. The review phase is existed to assure the system is always running on the tip-top condition and able to serve on the market. The system will be well-maintained and ready to be improved in future plan.

### **1.6 Significance of project**

By using this system, the food ordering process will be more systematic and more easily adapt to the self-service type of food court. Seems every order will be stored into the server. Thus, the data will be more reliable and secure. Besides that, as this system will integrate with the mobile payment, customer may just make the payment by using their phone. Moreover, as there will be providing an order receipt with order number. Therefore, all foods will be prepared in sequence according to the order number. With this system, customer will be easier to track their food status. As this will be a self-service food court, the self-service food counter will be accommodated for food collection to allow customer able to collect their food themselves according to their order number. With self-service food court, the stall owner may put more attention on kitchen side since they do not need to deliver the food to customers anymore. For the food court operation which not accommodating the self-service mode, it causes stall owner busier on delivering food to customers instead of cooking owing to the fact that they have to locate where customers at especially at peak hour when the food court is full of customers. The working efficiency of the employees at the food court will be increased, considering that the food ordering system with more systematic and well-managed.

## **1.7 Project Outline**

Chapter 2 will cover about the reviews which will be proposed by referring to the existing mobile applications. In this chapter, the comparison between the current existing mobile applications will be made for comparing the functionalities on each application. Those applications may be founded and accessed in Play Store.

Chapter 3 will discuss about the methodology that will be implemented in the project. The analysis phase and design phase in agile methodology will be covered in this chapter for assisting the developer to understand the project's guidelines.

Chapter 4, the actual user interface of the mobile application which applied in this project will be explained. All the features in this mobile application will be described in detail.

Chapter 5 is involving testing on the system which must be conducted before releasing the mobile application to clients for preventing any bugs occurred and fulfilling clients' satisfaction.

This chapter 6 will summarize the entire work of project and carry out the plan of future work in this project, for providing some suggestions to future developer to enhance and improve the system.

## **Chapter 2: Literature Review**

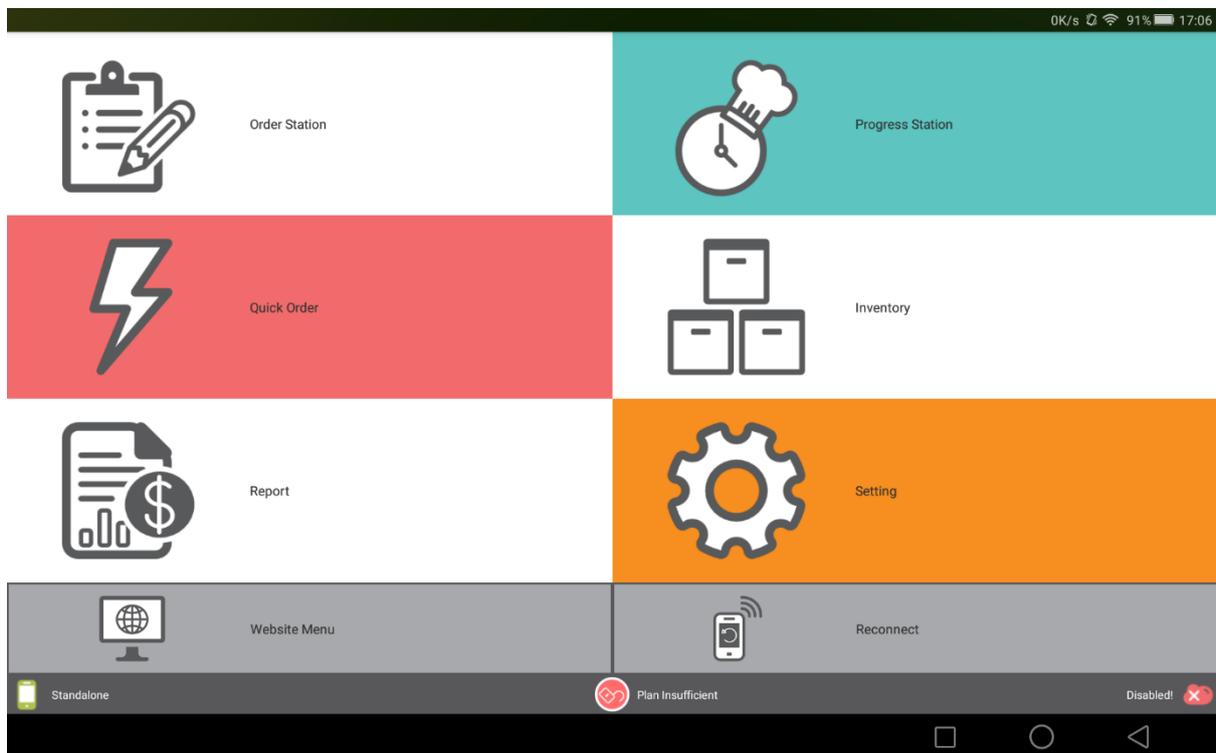
### **2.1 Introduction**

This chapter will discuss about the background study of the proposed system. Some of the existing systems which related to the proposed system will be studied and reviewed. By doing this, the mobile application which proposed in this project can be assured it able to achieve the objectives that have mentioned in previous chapter. As every system has its own advantages and drawbacks, a comparison among these systems will be conducted in a table structure to allow users understand the functionalities of different systems. All the findings of the existing systems can be gathered by downloading those mobile application in Google Play Store.

### **2.2 Review on Existing System**

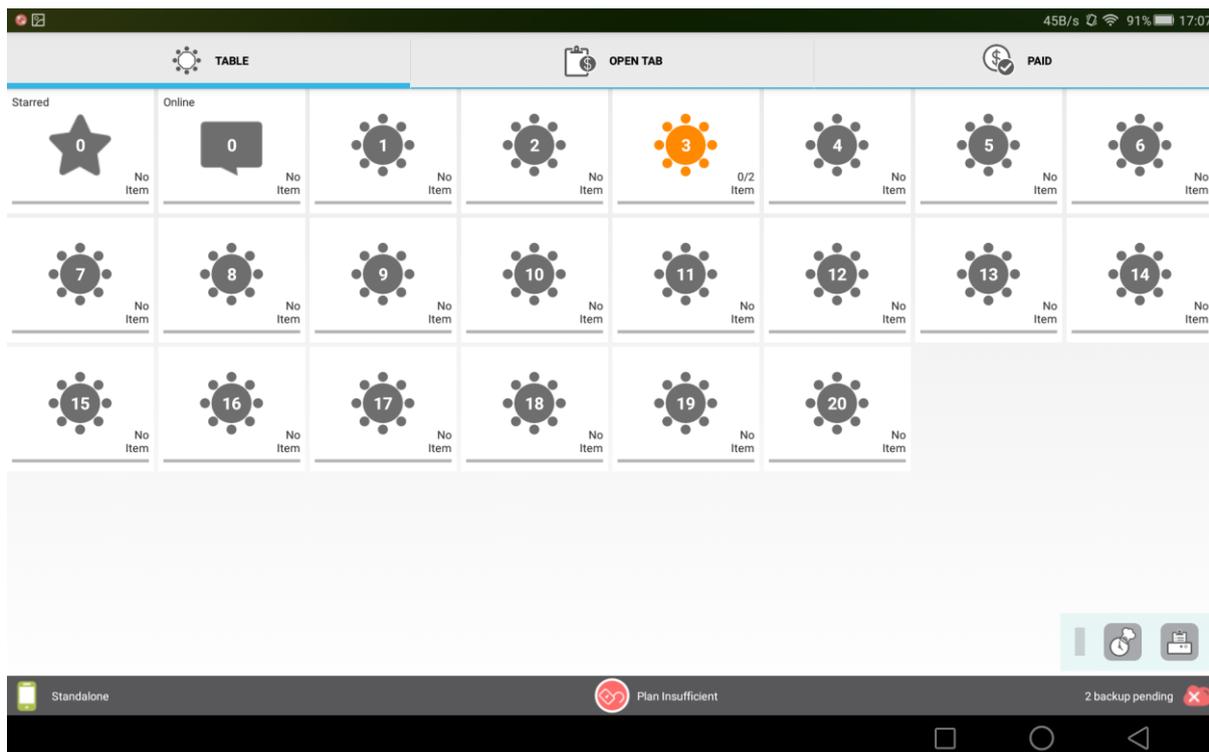
As mobile devices are capable of high mobility and gradually becoming cost-affordable in the market, the current trend in business sector is integrating the mobile devices into POS system. This allows them to do transaction anytime and anywhere. There are several kind of mobile POS systems which available on the market and had implemented in some business operation. This section will focus on reviewing the existing mobile POS system. Three similar existing systems will be taken to study their functionalities and identify their strengths and weaknesses. As there will be some differences among these systems, a comparison in table structure will be provided for highlighting each system's functionalities. The three mobile applications which to be reviewed are i.) FoodZaps ii.) W&O POS iii.) Royal POS.

## 2.2.1 FoodZaps



*Figure 2.1: The main menu of FoodZaps*

FoodZaps, a mobile application which based on Android system with the featuring of food ordering management system for small/medium restaurant and bars (FoodZaps, 2015). FoodZaps provides a food/beverage ordering management system to assist user in their business operation. Figure 2.1 depicted the user interface of FoodZaps. As we can see in the figure above, there have several modules like food ordering, inventory, report and general settings in FoodZaps.



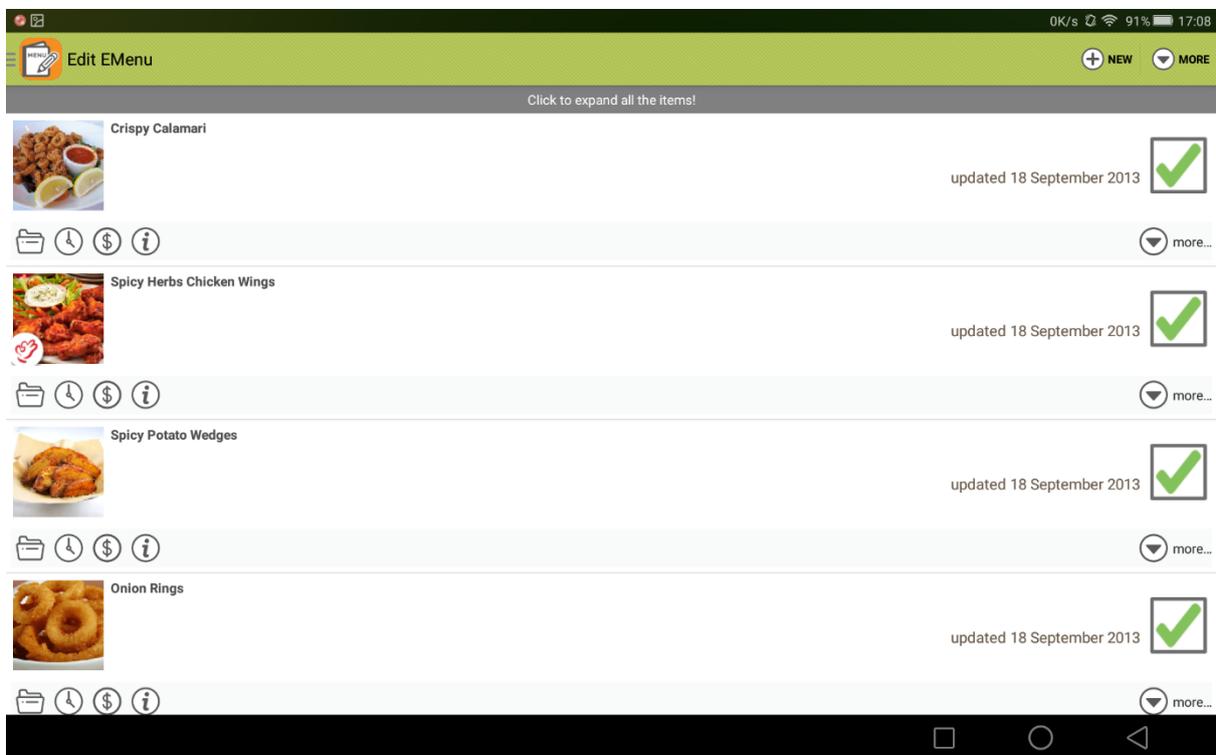
*Figure 2.2: The table menu in food ordering module of FoodZaps*

The ‘Order Station’ allows user to place customer’s order according to the seats as shown in figure 2.2. Once select the seat number, the food and beverage menu will be displayed for placing order. User may select the quantity of the food or beverage by pointing on the mobile devices. After confirming the order, the system will sum up the ordered food price by clicking ‘cart’ button. Then, you may choose different payment method to make payment. The receipt will be printed out by the configured printer once you had made the payment.

The ‘Progress Station’ allows user able to track the ordered food status. In this module, those ordered food will be listed out according to the table seats and will stating the food preparation status. This made user easier to track food status when customer asks about it.

The 'Inventory' module is used to record the quantity of the dish. The stock in inventory module will be created and linked with the dish. Hence, the system will automatically deduct the quantity of the dishes from the pre-set quantity when it is cooked.

The 'Report' module has the feature of generating the daily sales report at the time of closing restaurant. User may not need to close the sales and generate the report manually as system will assist to do so.



*Figure 2.3: The food eMenu of FoodZaps*

The 'Settings' module is the core of this mobile application. User may able to customize and configure their needs such as configuring the printer in this module. This module also allows user to add and edit the food menu in this mobile application. Figure 2.3 shows the food eMenu settings in FoodZaps. The currency format, bill discount, receipt configure, and other configuration tools also included in this module.

However, mostly the modules are locked and cannot be accessed by free user. User is opted to subscribe the premium plan for unlocking those modules such as ‘Progress Station’, ‘Inventory’, ‘Report’ and some configuration tools in ‘Settings’.

**2.2.2 W&O POS**



*Figure 2.4: The main menu of W&O POS mobile application*

W&O POS is an affordable and ease-to-use mobile POS application which running on Android platform. This application is specifically designed for small or medium-sized business such as restaurants, bars, food kiosks and etc (Wnopus, 2018). W&O POS not only focuses on food ordering system, the store management also included in its.