

SOFTWARE ENGINEERING

USABILITY REPORT

BUZZWORD



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1.1 Introduction

This document outlines the process we took in creating and executing a usability testing plan for our Restaurant Ordering Support System (ROSS). Said testing was carried out with the aim of identifying any flaws in our initial design and to gather a rough idea of user performance with the system.

The system is split into 3 parts. There is the app the waiter will use to take the customer's' order through, the kitchen display for relaying the orders, and the order update system providing an up-to-date status to the customer on their order. The app will be installed on a tablet available for the waiter to use at any table. The app will allow them to input an order and request any necessary modifications e.g. those caused by dietary restrictions. The kitchen display will present a clear summary of the order to the kitchen and will allow the kitchen staff to interact by providing an estimate on the time it will take for the order to be complete. The order update system will provide the customer with a summary of their order alongside its current status, as given by the kitchen staff.

This system is designed to replace the current ordering system the client has in place and will be installed in all their locations once complete.

1.2 Test Goals

The objective is to test the usability of our ordering system and whether it is preferable to the standard ordering system currently in place at the restaurants. We need to know if the essential actions of the system can be carried out easily by various users if the system is to be successful. We also aim to prove the 3 following hypotheses:

1. A mobile application is easy for a waiter to place orders through.
2. A kitchen display is easy for staff to monitor and interact with.
3. Providing the customer with constant feedback on their order leaves them feeling more satisfied.

If all three hypotheses are proven true, then we believe we have created an ideal system to be placed into use in all of our clients restaurants.

1.3 Participants

We expect to have between six and eight participants in our study. The subjects should have a range in both age and computer literacy. We are looking for varied participants as there is no one type of customer that may enter the client's restaurants. Customers may come from any background, therefore our system must be easily usable by all.

The participants will be asked to complete one questionnaire before and another questionnaire after they have attempted to perform multiple tasks using the mock-up UI of the system we have created. The participants will not have any prior knowledge as to the workings of the system other than a quick briefing before carrying out the tests, and will have an investigator present to answer any questions they may have, alongside providing any potential assistance required. All subjects will be required to sign a consent form prior to their participation in this study.

1.4 Experiment Design

Participants will be asked to complete a series of tasks on each part of the system. These tasks are representative of what we believe will be some of the most common actions taken by users once the system has been fully implemented. These ideas were extracted from our requirements document to help us identify which features to test most strenuously.

However, our prototype is nothing more than a shell user interface. Therefore we cannot test certain requirements such as 'F-UR-1.5 Forming and Placing Order for Fulfillment'. Since the three sections of the system are not interlinking in the prototype, we cannot currently test the successful processing of orders and their recording in the system. The confirmation of a successful order would be its appearance in the kitchen display.

1.4.1 Tasks (Wait Staff App)

- 1) Navigate to the main course menu.
- 2) Add 'Spaghetti Bolognese' to the order.
- 3) Add 'Ice Cream' to the order with ammendment 'Extra Scoop'.
- 4) Find what soft drinks are for sale.
- 5) Place the order/check out.

1.4.2 Tasks (Kitchen Display)

- 6) Check status of table 2.

1.4.3 Tasks (Customer Feedback Display)

- 7) Enter an order reference.
- 8) Check order status.
- 9) Summon waiter to request an amendment to the order.

1.5 Findings

There was 5 participants in the study.

1.5.1 Pre-questionnaire Results

1)

How often do you visit a restaurant?	
Daily	0
Few times a week	1
Once a week	2
Once a month	2
Never	0

2) Have you ever had difficulty placing an order in a restaurant?

No.

No.

No.

Yes.

No.

3) What common issues have you come across in restaurants?

Poor service.

Slow service bringing the food. Taking a long time to bring the bill.

Rude staff. Long waits.

Bad service and bad food.

Forgetting parts of orders.

4) Have you ever ordered food online through a website or an app?

Yes.

Yes.

Yes.

Yes.

Yes.

a) Did you mostly enjoy the service?

Yes.

Mostly.

No.

Yes.

Yeah.

b) What didn't you enjoy about the experience?

The wait.

Slow delivery - I'm hungry!

No way to know order has been prepared correctly until it arrives.

Long delivery times.

Lack of information about the food.

5) Do you prefer making purchases face-to-face or online?

I enjoy both.

Face to face - can ask questions and it's usually quicker. Makes experience more enjoyable (sometimes).

Face to face.

Both are fine, it's situational.

Online.

1.5.2 Test Results

1) Navigate to the main course menu.

All participants managed this task without issue.

2) Add 'Spaghetti Bolognese' to the order.

All participants managed this task without issue.

3) Add 'Ice Cream' to the order with ammendment 'Extra Scoop'.

A couple participants hesitated as they were unsure whether to enter the amendment in the text box before or after they selected the item.

4) Find what soft drinks are for sale.

All participants managed this task without issue.

5) Place the order/check out.

Some participants took a couple seconds to find the checkout button at the bottom of the screen but all participants completed the task.

6) Check status of table 2.

Lots of uncertainty on what could actually be done with what was on display with only one participant correctly pressing the status button on the first attempt.

7) Enter an order reference.

Confusion again at the appearance of the order reference, previously unmentioned. However, all participants were able to identify the correct steps to take.

8) Check order status.

Mostly understood, some were unhappy with the lack of clarity in the summary.

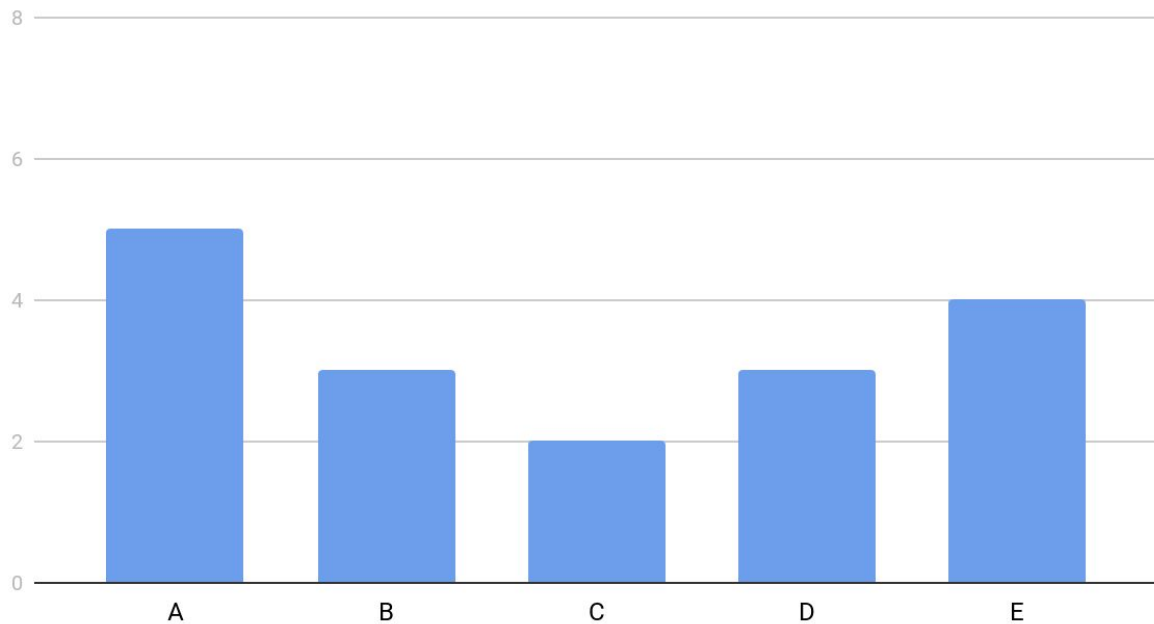
9) Summon waiter to request an amendment to the order.

All participants managed this task without issue.

1.5.3 Post-questionnaire Results

1)

Did you enjoy your experience?



2)

Did you find the system intuitive to use i.e. did all items appear under the correct headings/menus you expected them to?

Extremely intuitive	0
Very intuitive	0
Somewhat intuitive	3
Not very intuitive	2
Not at all intuitive	0

3)

Did you find yourself relying on the investigator for help often?	
Very often	1
Quite often	2
Occasionally	1
Rarely	1
Never	0

4)

How satisfied are you with the look of the system?	
Extremely satisfied	0
Very satisfied	0
Somewhat satisfied	2
Not very satisfied	2
Not at all satisfied	1

5) Would you like to use a system like this one in a restaurant?

Yes - it appeared fairly straightforward.

I would if it was programmed correctly and everything was visible + simple to use.

Not really. It seemed to over complicate the whole thing.

Maybe if improvements were made.

The idea is good. Should be a good system once the errors are fixed.

6) Do you have any thoughts on how to improve the system?

Tighten up on presentation - a few careless errors with spelling + layout.

Spell things correctly. A feature that lets you know how long your food will be. A chance to get drinks refills easily. White wine options please (don't like red)

Make things clearer and simpler. Too many parts are confusing.

Provide more options. Provide some more explanation for things like the kitchen orders.

Too complex for how little it does.

1.6 Conclusions

Features

All but one of the participants pointed out the lack of features of the system in its current state, questioning the viability of such a system. Although all who gave such feedback did think the idea had potential, if only the system had more capabilities.

In this case a repeat of the testing, featuring a prototype containing all the must have requirements, will assist us in coming to a conclusion on the quality of our system. This initial test has shown that while we have some promising ideas, we need more if we are to create a complete and successful system.

Navigation

Both the wait staff app and the customer feedback display were found to be very quick and simple to browse by all participants, but they all had struggles with navigating the kitchen display. The confusion stemmed from not being able to tell what was and was not a button. The assortment of bright colours with no explanation also proved to be misleading. Overall the layout proved to be a mess of colours and squashed together tables.

The layout proved to be clear for two thirds of the system and should provide a suitable framework to build upon from here. The kitchen display will absolutely need to be overhauled for future work. In its current state it is disastrous and borderline unusable. Without significant change it could become the achilles heel of the project.

Visuals

The main positive that was repeated about the look of the system was the lack of clutter on screen. Another negative point that was shared by multiple participant was that colours were not used very well, with a lack of colour and life in some sections, and the overdone and unhelpful use of colours in others getting in the

way of functionality. The kitchen display again came in for heavy criticism in this aspect. The wait staff app had mixed feedback. The participants liked the clarity of all objects but found it very bare looking, due to lack of options, colours, and images.

The feedback from the participants has shown that there is improvement to be made to make the system much more visually appealing. There is a balance that needs to be met however, as shown by the contrasting feedback on the separate parts of the system. Steps must be taken to make the system look more professional and this will take more than a splash of colour here and there.

1.7 Mock-up Design

1.7.1 Wait Staff App

Starters	Main Course	Deserts	Drinks	
Add to order				
• Garlic Bread			£2.50	<input type="checkbox"/> Additional requirements
• Classic potted shrimps			£3.99	<input type="checkbox"/> Additional requirements
• Smoked salmon with prawns, horseradish cream & lime vinaigrette			£2.99	<input type="checkbox"/> Additional requirements
• Sautéed scallops with mushrooms & spinach sauce			£4.50	<input type="checkbox"/> Additional requirements

Check Out

Starters	Main Course	Deserts	Drinks	
Add to order				
• Chicken Supreme Pizza			£6.50	<input type="checkbox"/> Additional requirements
• Vegetable lasagne			£5.99	<input type="checkbox"/> Additional requirements
• Vegetable Supreme Pizza			£6.59	<input type="checkbox"/> Additional requirements
• Spaghetti Bolognese			£5.50	<input type="checkbox"/> Additional requirements

Check Out

Starters	Main Course	Deserts	Drinks	
				Add to order
• Ice Cream		£3.50	+	<input type="text" value="Additional requirements"/>
• Mulled wine brownies		£2.99	+	<input type="text" value="Additional requirements"/>
• Chocolate trifle		£1.99	+	<input type="text" value="Additional requirements"/>
• Chocolate & butterscotch Icecream		£2.50	+	<input type="text" value="Additional requirements"/>

Check Out

Starters	Main Course	Deserts	Drinks	
				Add to order
• Wines		250/375ml		<input type="text" value="Additional requirements"/>
Mulled Wine		£3.50		
Syrah		£2.50		
Merlot		£3.50		
Cabernet sauvignon		£2.50		
Malbec		£3.50		
Pinot noir		£2.99		
• Soft Drinks (bottle)				
Fanta x 1		£1.50		
Coca cola x1		£1.50		

Check Out

1.7.2 Kitchen Display

Order Status

Table 1			
Starters	Main Course	Deserts	Drinks
Table 2			
Starters	Main Course	Deserts	Drinks
Table 3			
Starters	Main Course	Deserts	Drinks
Table 4			
Starters	Main Course	Deserts	Drinks
Table 5			
Starters	Main Course	Deserts	Drinks

Orders

Table 2

Starters	Main Course	Deserts	Drinks
	Vegetable Supreme Pizza	Chocolate Trifle	Coca Cola

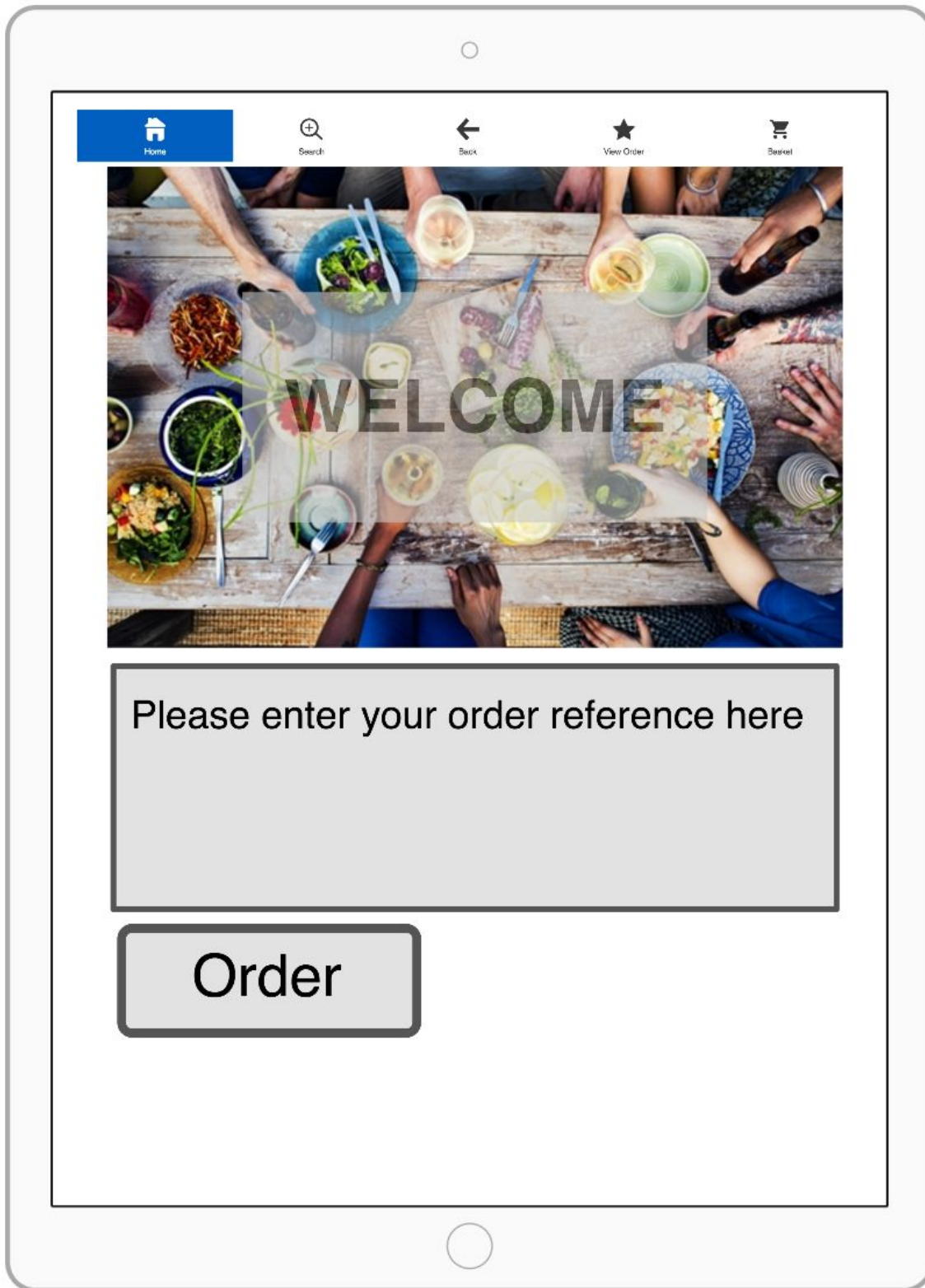
Table 3

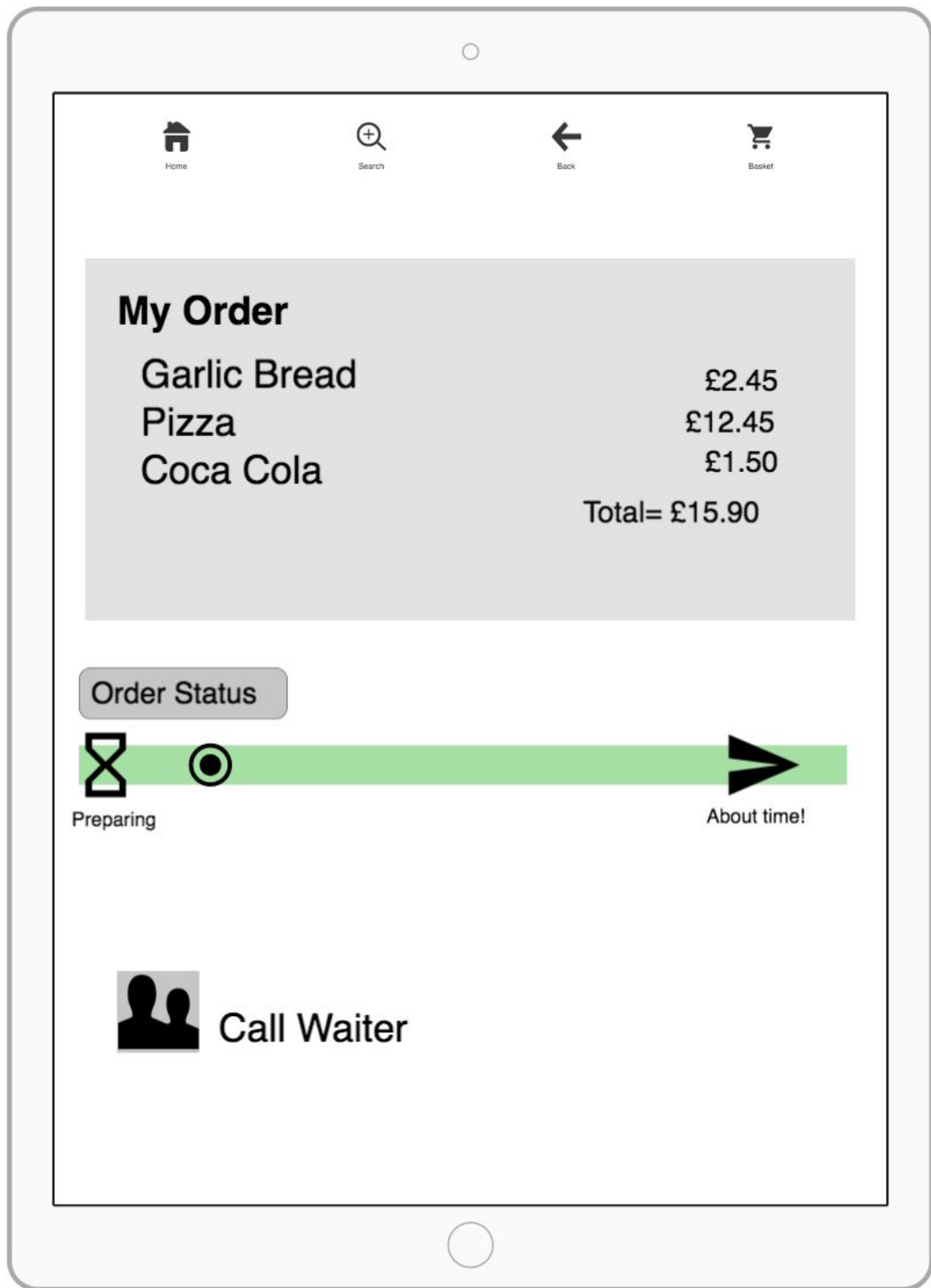
Starters	Main Course	Deserts	Drinks
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Table 4

Starters	Main Course	Deserts	Drinks
Garlic Bread	Chicken Supreme Pizza		Merlot x1 (275ml) Water x1

1.7.3 Customer Feedback Display





1.8 Consent Form

Consent Form For Usability Experiments:

Buzzword Restaurant Ordering System

Team Buzzword

Consent to Act as a Subject in an Experimental Study

Principal Investigator: Kerr Brydon, Mamta Sofat, Craig Duffy, Wai Teng Chong, Michael Steventon, Tommy Lamb, Alistair Nibloe

Description: The purpose of this study is to study whether our initial design is intuitive enough to be used in a real world setting and to identify any possible areas of improvement. We will use a basic mock UI to carry out this study.

There are minimal risks for you to participate in this study. All personal information will be kept confidential in a secure filing cabinet or in password-protected computer directories in accordance with the provisions of the Data Protection Act 1998.

You are free to decline to participate in this study. Should you decide to participate, you are free to end your participation at any time. You are also free to withdraw 7 days after the study (please email krb1@hw.ac.uk). If you withdraw your data will be removed and destroyed.

Participation voluntary consent: I certify that I have read the preceding and that I understand its contents. Any questions I have pertaining to the research have been answered satisfactorily by the team. My signature below means that I have freely agreed to participate in this study.

Date
Initials

Subject Signature

Inv.

.....
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Investigator's certification: I certify that I have explained to the above individual the nature and purpose, the potential benefits, and possible risks associated with participation in this research study, have answered any questions that have been raised, and have witnessed the above signature.

Date

Investigator Signature

1.9 Pre-questionnaire

Pre-Questionnaire

1. How often do you visit a restaurant?
 - Daily
 - Few times a week
 - Once a week
 - Once a month
 - Never
2. Have you ever had difficulty placing an order in a restaurant?
3. What common issues have you come across in restaurants?
4. Have you ever ordered food online through a website or an app?
 - a. Did you enjoy the service?
 - b. What didn't you enjoy about the experience?
5. Do you prefer making purchases face-to-face or online?

1.10 Post-Questionnaire

Post-Questionnaire

1. Did you enjoy your experience?

1	2	3	4	5	6	7
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Not enjoyable

Very enjoyable

2. Did you find the system intuitive to use i.e. did all items appear under the correct headings/menus you expected them to?

- ☐ Extremely intuitive
- ☐ Very intuitive
- ☐ Somewhat intuitive
- ☐ Not very intuitive
- ☐ Not at all intuitive

3. Did you find yourself relying on the investigator for help often?

- ☐ Very often
- ☐ Quite often
- ☐ Occasionally
- ☐ Rarely
- ☐ Never

4. How satisfied are you with the look of the system?

- ☐ Extremely satisfied
- ☐ Very satisfied
- ☐ Somewhat satisfied
- ☐ Not very satisfied
- ☐ Not at all satisfied

5. Would you like to use a system like this one in a restaurant?

6. Do you have any thoughts on how to improve the system?