Deliverable C- Design Criteria

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October 8th, 2020

1.0 Introduction

This technical document contains a list of prioritized design criteria including functional requirements, non-functional requirements, and constraints. Next, technical and user benchmarking are detailed in order to provide target specifications which can be used in the development of a final solution for the JAMZ project. The functional and non-functional requirements highlight what needs to be completed for the final application. It divides the requirements into functions that will be essential to the application and functions that are not necessarily essential but will enhance the application. The constraints listed in this document highlight the restrictions that are to be met in the project. Finally, the technical benchmarking section includes benchmarking on popular food delivering services while the user benchmarking section highlights the same popular food delivering products but in terms of customers' perceptions.

2.1 Design criteria:

2.2 Functional and Non-Functional Requirements:

Requirements are divided into functional and non-functional categories. Functional requirements are the ones that must be fulfilled for the product to be functional. For example, the UI should contain embedded drone tracking google maps, which is indicated by the X under Functional Requirements in Table1. Non-functional requirements are the ones that enhance the product but are not necessary. For example, a modern look to the UI, a variety of languages and a FAQ section do nothing for the functionality, but enhance the experience for the user.

Design Criteria				
Interpreted Need	**Priority (1-5)**	**Functional requirements**	**Non-functional requirements**	**Constraints**
Embed Google Maps into the UI	5	X		X
Location to store shopping choices	5	X		
User login	4	X		
List food items and display restaurants by distance	5		X	
Add online menu for websites	4	X		
User-friendly menu	5		X	
Give a list of available restaurants	3	X		
Be able to pay online when ordering	3	X		X
Services only offered during ideal weather conditions	3	X		X
Use JavaScript when programming the application	3		X	
Reach remote areas	5	X		X
Method of confirmation (notification)	2	X		X
Make UI look futuristic and modern	4		X	
Notify customer if a problem occurs	4	X		X
Human contact is avoided at all cost from the time of placing an order to delivery	5	X		X
Ensure food is picked up by the right person	4	X		
Customer service	2		X	
Feedback survey	3		X	
English and french versions	2		X	
Frequently asked questions section	1		X	
Be able to accommodate people needs	2		X	

Table 1: Design Criteria

2.3 Constraints:

Constraints						
	Design specifications	**Constraints**	**Relation**	**Value**	**Units (metrics)**	**Verification Method**
1	Embed Google Maps into the UI	Accuracy of drone location	<	5	ft	Test
2	Be able to pay online when ordering	Use of credit/debit cards	=	No Cash		
3	Services only offered during ideal weather conditions	Wind speeds, thunderstorm	<	30	mph	Estimate
4	Reach remote Areas	Delivery radius	<=	30	min	
5	Method of confirmation (notification)	Notify within a time frame	<	1	min	Analysis
6	Notify customer if a problem occurs	Notify within a time frame	<	30	secs	Analysis
7	Human contact is avoided at all cost from the time of placing an order to delivery	No human interaction	!=	human contact		Test
8	Be able to accommodate people's needs	Accessibility	=	accessible		Test

Table 2: Constraints of client mobile app UI

Constraints are conditions that limit certain aspects of the product. For example, some constraints are the need to be able to handle electronic payment methods, or the avoidance of human contact. These constraints can usually be expressed in units such as time or dollars. While we are designing a mobile UI application for JAMZ and not designing the drone itself, the mobile UI needs to know the specifications the drone has in order to communicate between the drone and the customer (i.e. if the drone *can* or *cannot* deliver). For instance, the mobile app UI needs to know the weather conditions (wind speed, lightning) and needs to know how far the drone must fly to reach a client destination. In addition to *drone constraints*, the mobile app needs *UI constraints*. For instance, it needs to accept online payments to prevent human contact and be accessible to people (young, old, deaf, etc.). Finally, notifications are a big constraint since it is essential that a notification is sent out within a certain time limit if, for example, a problem occurs with an order.

3.1 Benchmarking

3.2 Technical Benchmarking

Technical Benchmarking				
Delivery Service ***(Right)*** Specifications ***(Below)***	**Skip the Dishes**	**Grub-Hub**	**Uber Eats**	**DoorDash**
Delivery Methods	car, scooter, bike	car, bike	car, walk, scooter, bike	car, scooter, bike
Online menus	Yes	Yes	Yes	Yes
Base Delivery Price	$9.89	13.05%+$0.30	$1.49-$4.49	$7.99 – $13.99
Mobile Application	Yes	Yes	Yes	Yes
User Login	Yes	Yes	Yes	Yes
Tracking	Yes	Yes	Yes	Yes
Virtual Map	Yes	No	No	Yes
Star rating (App Store 1-5)	4.6	4.7	4.6	4.6
Number of Users	350K, CA	19.9M, US	79.4M, US	20M, US
Number of Employees[1]	2000	2715	26, 900	7,549
Languages available	FR, EN	EN	EN, FR	EN, FR, ES
Methods of payment	Card	Card	Card	Card
Option for dietary restraints	No	No	Yes	No

Table 3: Technical Benchmarking

By comparing local or popular food companies, we can comparatively assess the pros and cons of each food delivery website. Though the different sites include the same features, there are some major differences between the companies such as the base delivery price or the presence of a virtual map. Using other companies as a benchmark provides a rough outline to what an average product should include. From this information we can make decisions on what our product should contain. Based on the info collected, it seems that most of the companies include mobile apps, user login, online paying methods, online menus, and tracking features. Additionally, adding a dietary restrictions option, multiple languages and a virtual map are features in some of the apps that should be considered when creating our UI. Researching the different websites also gives a visual comparison and allows you to compare the layout of the websites. Seeing other products helps to

[1] Prioritize a setting where the number of employees is limited, drone does the work and UI app runs itself.

differentiate your product from theirs, makes you ask questions like “how is mine different” or “how can I make my product different from existing products”.

3.3 User Benchmarking

The general stigma around online delivery services is that food arrives cold after long wait times. Furthermore, people are scared that some food items will be missing. Since the delivery service times are dependent on the distance the drivers must travel to get to the restaurant, as well as the distance between the restaurant and your house, there is a good chance your order will be late. This leads to the food being cold upon delivery. When the delivery drivers are a lot later than their predicted times, no compensation is offered, this leads to frustration. Also, when food orders are erroneous, there is no real means for you to receive your food unless you want to wait for an additional order. The one main benefit of these delivery services is that people can pay through mobile apps and do not have to leave the comfort of their homes. However, this new method of providing food without travelling has revolutionized the world and has rendered these apps incredibly popular, hence their high reviews.

4.0 Conclusion

This technical document has explained the importance and priority of functional and non-functional needs to evaluate the design criteria. Project constraints were also determined to define the limits of the aspects that will be included on the UI. The issues and benefits of each of the members of the competition (according to the user) were also analyzed in relation to what can be improved for the development of the online software for drone delivery. Statistical data for each of the competitors was also collected and ranked on a scale of 1-3 where UberEats was determined to be the best mobile ordering service.

5.0 References

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