Application for Gig-Company Drivers

Design Project Report in Human Computer Interaction DH1622

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Final report for (DH1622)

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Link to prototype: *Foodora*

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1. Introduction

1.1. Background

This app addresses the specific needs of gig-company drivers, who face continuous challenges in navigating diverse routes and optimizing efficiency. Limited communication and access to critical information hinder their performance. The primary goal is to refine and enhance the applications functionality and design, focusing on improving user experience, task flows, and energy-saving options.

1.2. Goal

Since there already exists an app for Foodora drivers, our primary goal is to refine and improve the application's functionality and design. Our focus is to add missing or malfunctioning features, enhance overall intuitiveness and design, in order to optimize the user experience. Increasing the efficiency by optimizing task flows, reducing unnecessary information/communication by focusing on the task at hand and adding energy saving options.

1.3. Purpose

The application aims to enhance user experience by simplifying its usability, and as a result assist the courier during delivery. Moreover, enabling the delivery person to work more efficiently and handle a higher volume of orders.

2. Data collecting

2.1. Method

We employed the Double Diamond Process to structure our design work. The Double Diamond process is a design-thinking methodology that provides a structured model for approaching and solving design problems. The process is divided in 4 phases:

a) Discover
b) Define
c) Develop
d) Deliver

It's not necessarily linearly in a process, but rather applied on the same design repeatedly in order to refine and improve the design.

a) Discovery - understanding the problem

This phase focuses on how to understand the problem. It suggests starting an initial research into the problems that you want to solve using your design. This is usually done through user-

and market research. In our case, we will not conduct a market research and will only focus on identifying our target user “persona”. We started with researching gig-companies, and how their workers operate. Then as the phase Discovery suggests, we needed to conduct interviews with drivers to understand their experiences and pain points with the current app. Collect information on their daily operations, most common challenges during their work hours and possible improvements using design.

A major challenge for us was the lack of available information regarding the internal processes for drivers. How is a worker assigned to an order, how it looks from the rider's perspective when accepting an order, what happens if something goes wrong etc. We managed to contact a team leader currently working at Foodora who also previously worked as a rider. We conducted a semi-structured interview, since given our limited knowledge, it is a good way to both cover a range of varied topics and for us to dwell deeper. We focused mostly on discussing daily routines and possible scenarios, rather than asking them directly. This approach together with the open-ended format encouraged the interviewee to narrate their experiences, detailing the steps involved and the most common problems throughout the entire order process.

We informed the interviewee that the recordings would only be used for educational purposes and would be deleted after the course has concluded. In order to gather more data, we designed an interview form that we intended to give to other Foodora drivers. Our initial approach was to go out to their “Rest zone” in the inner city, and ask them to fill out the forms, but this yielded no responses. We also emailed the company Foodora thrice, but received no response.

Our first interviewee warned us that many drivers are hesitant to disclose information in fear of getting in trouble or be fired. Since our attempts failed, we had to rely solely on the data provided by our only interviewee. However, the interviewee’s role as team leader allowed them to share valuable insights into both their team’s current challenges and the problems they personally faced when working as a driver.

2.2. Data gathering

b) Definition - defining the problem

The next phase focuses on analyzing the gathered information and defining a clear and specific problem statement. We found that the app is functioning mostly well according to their needs, but the following is what interviewee highlighted as the current problems for gig-company (Foodora) drivers:

Communication problems:
If a customer doesn’t provide a door code, then the rider must call them. If there is no response, then the rider must contact Foodora’s support through the in-app chat. Another

problem is that riders cannot directly contact restaurants through the app; they need to contact support for the restaurant's number.

Delivery logistics:
Estimated cooking time is provided to the driver, but the accuracy varies. Some restaurants send notifications, but not all use this system.

App malfunctioning:
The app occasionally malfunctions, preventing riders from accepting orders or causing pauses in their app. Another problem that they said was the most major is the battery drainage. During the winter, the cold causes the battery to drain faster. Since the app is constantly updating the customer about the rider's location, it also drains the battery for the rider due to being a location-based service. Adding to the challenges highlighted earlier, there is an edge case where attempting to click the “pick up/deliver” button won’t work, since the areas of the address intersect.

2.3. Requirements and ideas

c) Development - developing possible solutions

Besides the current problems described by the interviewee, they explained also that the iphone (an iphone is a requirement) is not affixed onto the vehicle but instead fastened on their arm using a phone cover case. Initially we considered a design solely optimized for thumb usage, but then instead opted for a design where the driver taps with their other hand.

As previously mentioned, since there already exists a functional app, our approach to the solutions revolved around refining and improving the current design to cater to the driver’s needs.

A solution to the communication issues is to implement a direct communication channel between the rider and restaurant/customer. An additional solution is to eliminate the rider as the intermediary “middle-man“ for customer-restaurant communication.

Regarding the delivery logistics, a solution is to implement a feature that tracks historical restaurant data, average cooking times, busy hours and other relevant data. Since the customer's requests for the driver to communicate with the restaurant won't make the cooking time shorter. Additionally, since the interviewee mentioned the problem that restaurants have difficulties in estimating for the food to be read, as they typically repeat giving 5-minute updates until the food is ready. The group thought that statistics would be the best way to solve this, since the current system doesn’t work.

To solve the battery drainage problem, the group brainstormed several design solutions. One idea is to implement “dark mode”. Various implementations were considered, such as automatic adaption to the device’s dark mode settings, manual toggling between light and dark modes, or automatic adjustments based on the iPhone’s light sensors. Besides being a

battery saving function, dark mode would be beneficial for drivers working in the dark winter and late hours, reducing eye strain when transitioning between well-lit buildings and dark streets. Another battery saving idea is adding low-power modes in the app's settings, giving users the ability to customize and change to their preferences. Users can activate power-saving features like reduced image quality, disabled animation, lessen the frequency of real-time location sharing, sharing an estimated location of the driver instead of precise location. or recommending the use of map apps with lower battery consumption.

3. Implementations

3.1. Paper prototype - Low fidelity

To start off the prototyping of the app it was easy to do it with a paper prototype due to the fact that paper and pen is a quick and easy way of sketching design ideas and removing parts that we were not satisfied with. This provides a practical way for the designers to show the prototype, get some useful feedback and then an easy way to improve and customize the app.

On the day when the paper prototype was tested the method Wizard of Oz technique was used (Ramaswamy, 2022). The idea was to have one of the members in the group presenting the prototype by letting other people test the app. The users could "click" on the sketched app icons and the group member would then change the paper to the correct one depending on the icon. The point of this test was to see if users could complete tasks by easily navigating in the app and to take note on what could be improved. This procedure was repeated with different users from other groups so that more faults and more feedback could appear.

3.2. Digital prototype - High fidelity

After the paper prototype was done and tested by different users it was time to start making a digital prototype to better show how the final product would eventually look like. It was easy to do a digital prototype when there already was one in paper form. The task was to make an interactive prototype with functional buttons, even though it is not a real app. For this prototype we used google slides. With this high fidelity prototype different functions were developed for users to later on test and evaluate. This was done by linking icons from one slide to another.
The users were in focus when the structure of the app was designed and the Double Diamond technique was what we worked with during the design process (Sharp, Rogers & Preece 2019, p.38). This technique provides a process with much feedback and help from the users along the way, going back in the prototypes and changing features whilst still moving forward.
When the prototype was done some tasks were made for the user to solve. This was a way for us to get an idea of what was wrong with the design and what could be improved. An important note is that the design of the digital prototype was based on our chosen tasks which

meant that the user was not able to sidetrack from the given assignments. Hence the prototype could not deliver everything that a normal app should.

4. Result

4.1. User testing

The user testing is based on the predetermined user needs, feedback and focuses mainly on the natural flow throughout the app that matches the different stages of a delivery. We prioritized the intuitiveness for the user and made sure that the design did not demand any excessive amount of pre required knowledge. Any new user, as well as our test subjects, could thus start using the app and perform the different dedicated tasks with minimal understanding of the interface.

Testing was set up in such a way that the test subject would be informed beforehand which task to complete. Three different tasks had been predetermined an where as follows:

1. Changing different settings - This required the test subject to navigate to the settings page and change the different parameters for position sharing, while also configuring different modes for power saving.
2. Accept and deliver orders - In this task the test subject was required to accept an order and follow the steps of delivering it through the app.
3. Order history and darkmode - This task required the test subject to navigate the app in dark mode while accepting an order, browse order history and toggle between light and dark mode.

The test subject was assigned one of the three tasks with corresponding instructions. We would then record how the user interacted based on the app flow, design, intuitiveness, usability, visuals and functionality.

Based on the documented data the following observations could be made: some stages in the natural flow of the app's delivery process were less clear, furthermore there was also some confusion regarding the menu icon and its function.

5. Discussion (reflection)

5.1. Method

As previously highlighted, the project was developed utilizing the Double Diamond process. This methodology not only played a pivotal role in guiding our workflow but also introduced a unique dynamic to our project progression. As it is a less concrete straightforward approach it required us to engage more in the data gathering process which assisted us later on when designing the app. The method required us to broaden our understanding of the subject in order to generate the necessary outcome that was desired. In doing so, the Double Diamond process brought an element of unpredictability and a delightful unconventional pathway to our project journey.

5.2. Requirements

Before the design of the app started to get developed, the group had thoughts and requirements for what the app should be able to do in order to make it as simple as possible. One thought was to make it easy for the user to change the app screen from light mode to dark mode and vice versa. Considering that the riders may need to change the light in the middle of a delivery when they are in a hurry. In addition, the ability to change to dark mode is a matter of safety for the user. The design was able to reach the requirement we set up. The toggle switch is easy to spot and understand.
An important requirement for this app was its ability to save battery on the mobile in different ways, due to the fact that the battery was an issue according to the riders. The app was designed so that in many ways, the battery can be saved and the user can effortlessly choose different approaches to do it. Even though it may need some extra steps to get to battery saving mode and the different settings, it has a clear path and it is easy to understand the toggle switches. The different settings to save battery was for one thing the ability to choose how often the rider's position would refresh during an accepted order. Under the same setting the rider also has the opportunity to choose which map app they prefer or if they want to use the foodora app's own map. Both of these two settings are easy to locate and use, as mentioned before.

5.3. Heuristic evaluation

Heuristic evaluation plays a crucial role in assessing the usability and user experience of our application. By systematically applying a set of usability principles, or heuristics, we aim to identify and address potential design issues that could impact user satisfaction and task performance. Nevertheless, our ability to achieve this is somewhat constrained by the limitations of our design knowledge and the tools at our disposal. None of us has worked with heuristics prior to taking this course and Google slides is limited in its capability to function as a design tool. Thus, there are heuristics that could not be fully incorporated due to limitations as stated above or due to the inherent nature of our requirements.

Regarding the natural flow throughout the app, as introduced in 3.1. user testing, our prototype follows the heuristics according to our requirements. As the user begins the process of delivering an order, the app provides adequate feedback, instructions and support all throughout. Nevertheless, as an example the design is insufficient in providing a valuable aesthetic and minimalist design and relies heavily on premade icons. This also creates an inconsistency in the design which in turn diverges from the desired outcome, according to heuristics.

Within the framework of our design objectives the prototype meets the established prerequisites. However, we acknowledge that there is room for improvement and that continual refinement is essential. This is necessary to further enhance its overall efficacy and user experience.

5.4. Functionality and design

In shaping the application's functionality and design, our approach was rooted in a user-centered philosophy, guided by insights gathered from foodora workers/interviewees. By actively involving users in the design process, we identified and addressed their specific challenges. Notably, the issue of battery drainage was resolved through an optimized power-saving mechanism and refined map settings, while maintaining a visually streamlined interface with minimal graphics and animations.

Additionally, interviews highlighted the inconvenience of having the phone fastened to the arm, prompting the implementation of a simple UI. This design choice prioritizes user efficiency, minimizing steps required for users to seamlessly accomplish their tasks.

5.5. Result and further explorations

After studying the user test results we realized that clarity is of high importance especially to newer users, so to make the map a bit clearer we could only fetch and show the address for the pickup, and only after the pickup process has been completed the application fetches and shows the delivery address/icon. another improvement is to have the application use your location to change the order status for example two minutes after you reach the pickup destination, the application sends a notification that has three options, change status, resend after 5 minutes in case there is a delay, or lastly open support, these notifications will save you time and battery because your screen will be turn on for a less time.

6. Conclusion

By working with the guidelines given to us as well as adjusting the work according to our own thoughts and ideas, a functional and interactive prototype app for foodora riders was made. The goal of this project was accomplished, in reference to the ideas and requirements. Nevertheless, there is room for improvement, both in the work process as well as the app in itself with all its functions.
When working with these sorts of projects, it is important to remember that meeting the needs of each individual is unattainable. In some cases, it can be a good choice to prioritize usability over simplicity. At times, the situation may be reversed. It serves as a reminder that the balance between usability and simplicity is a nuanced consideration, often requiring flexible approaches to meet the evolving demands of users and the changing landscape of technological solutions.

7. References

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