**CP317 Project: Team Organization and Project Proposal**

**Group 12 Project Proposal Contribution**

| **Section** | **Contributor** | **Student Number** |
| --- | --- | --- |
| Introduction | Luke Shi | 200608140 |
| Summary | Luke Shi | 200608140 |
| Target Customers | Luke Aikman | 201652750 |
| Market Survey | Branden Wheeler | 190197360 |
| Value Proposition | Luke Aikman | 201652750 |
| Features/Goals | Amirhossein Kompanizare | 130783830 |
| Success Criteria | Haniah Khan | 200687050 |
| Challenges/Risks | Ninam Rai | 200619540 |
| Languages/Tools | Branden Wheeler | 190197360 |
| Revision numbers and change history | Naimo Yasin | 201640360 |

**Planned Contribution**

| **Section** | **Contributor** |
| --- | --- |
| Terminal development | Luke Shi, Amir, Branden |
| App development | Luke Shi, Amir, Haniah, Branden, Naimo |
| Final Powerpoint | Ninam, Luke Aikman |
| Resource management and  evaluation | Haniah |
| UX and App Design | Ninam, Luke Aikman, Haniah |

**Introduction**

Every time you make a purchase, you will more than likely run into one of these pesky strips of paper, a receipt. They are a hassle to keep around and get misplaced far too easily. They’ve taken residence in your drawer, email, shelves, and maybe even trash bins. Not only are they wasteful and unnecessarily long, but they also harm the environment by consuming large numbers of trees and escalating climate change. With the massive economic and technological boom of the 21st century, shopping and digital devices have been integrated deeply into our daily lives. So, just like other modern services, our team feels that it is about time for receipts to go digital as well. This is where Balance comes into play. Through this service, vendors will be able to digitally transfer a copy of the receipt for that purchase directly to your device. With Balance, we will be able to keep the tracking of purchases hassle-free and make paper receipts a relic of the past.

**Summary**

Balance’s service comes in two components: the terminal and the application. The terminal will theoretically be integrated into a point-of-sale (POS) machine. This device will be able to store the details of the current purchase receipt and overwrite that with a new receipt when the next purchase arrives. To transfer the receipt’s data to a smartphone, our terminal will have a near-field communication (NFC) tag built-in. NFC tags allow the transfer of data when two or more tags make physical contact. This is the same technology that allows the usage of the Tap and Pay feature on your debit/credit cards and smartphones. Then comes the second component, which is the application on the mobile device. This application will receive the receipt by using the built-in NFC on the mobile device and then store it into the smartphone’s gallery. With both of these components working in tandem, Balance will be able to seamlessly create, transfer, collect, and record purchase receipts in a matter of seconds.

**Target Customers**

The main customers would be people who do a lot of shopping and large stores. This would allow stores to save money on paper from receipts and also be more environmentally efficient. For people who shop a lot, this would allow them to have all their receipts in one place making it easier to do their taxes when tax season comes around.

**Market Survey**

NFC technology is quickly becoming used universally in mobile devices so this software would be available for a large market of consumers. It is estimated that there will be over 1.6 billion NFC-enabled devices by 2024 and NFC interactions experienced a 63% growth from 2018-2020 (<https://www.bluebite.com/nfc/nfc-usage-statistics#:~:text=73%25%20of%20smartphones%20supported%20NFC,19%20percentage%20points%20from%202015>.). This demonstrates that the technology isn’t going away any time soon so our product will still be relevant. As for competitors, there is a company called Proximant that made a point of sale terminal for transferring receipt data using NFC but they haven’t been active since 2012 so there is a gap to be filled in the market. Walmart currently holds a patent for the technology that transfers receipt data through a terminal. However, our product is focused on the software that tracks the purchases based on the input receipts, not the patented technology itself. There is also a company called Flux that has an application for helping you to track your digital receipts but it is not performed through NFC transfer. We hope that by combining the benefits of these two companies our product would be successful in the market.

**Value Proposition**

Businesses who choose to use this product will gain benefit by saving money on paper and becoming more environmentally friendly. The fact that they are more environmentally friendly will help them get more business because of the sole fact people like to support green companies.

Individuals who choose to use this product will gain benefits because it will make it easier for them to keep track of all their purposes.

**Features**

Balance displays receipts to consumers by using NFC to transfer the data from the retailers’ point-of-sale. Which basically results in a trouble-free experience for saving and managing receipts over a long period of time.

**Goals**

The main goal by building this software is to make the process of tracking receipts more convenient. Whether it is for budgeting or tax purposes it makes the process much simpler. This app helps to save time and prevents clutter, it also decreases the paper consumption of businesses which is important to the future of our planet.

**Success Criteria**

There are a few key features that are important for Balance to achieve in order to be considered a successful project. First and foremost we have until July 10th to complete our project before presentations, so if as a group we were able to manage our time wisely and complete and achieve the desired results in a timely manner that would be our first step to a successful project. It is also important that all members attend at least one meeting during each week so that we are all on board and can make sure we are progressing in a timely manner. To make sure our product is the most competitive in its field and thereby the most successful, we need to make sure our product is easy to use, nativage, set up and is convenient. Once the transaction has gone through, the digital receipt should come through within seconds so customers are able to look over their purchase and claim any returns immediately if needed. Balance would be considered a success if someone who is unaware of our project is easily able to download, set up and once they make a transaction, get a digital copy of their receipt immediately.

**Challenges/Risks**

New business comes with a variety of challenges and risks. The most important being customer satisfaction. This can be achieved by focusing on the communication to the consumers about our product. Our product is something new and different that most people are not used to yet and we risk them misunderstanding our product. To mitigate this, we should ensure that our product is user friendly and that the consumers are informed on how to easily switch to our product without it being an inconvenience or hard to figure out. Another risk that exists is that although there has not been any specific company that has dominated the market we are aiming for, there are several companies that have already tried to do so. To make sure that we are able to beat our competitors, we need to create brand awareness and secure brand loyalty by developing a unique feature that our rivals can not replicate. Shifting our attention to the internal part of the project, we also need to consider the risks and challenges that can appear while building the product. An important step to building a software is to plan ahead on what roles and responsibilities are assigned. The ideal software process model we can use to certify this is the incremental development model. This would be the best for our team because we are quickly able to get customer feedback and adapt our product to deliver the best product in a constantly changing market. This would also give us a competitive advantage against competitors because we can get the product in the hands of our customers posthaste.

**Languages/Tools**

To develop this project we will be using Python. We chose this language because it is capable of performing in an object-oriented manner by supporting classes and inheritance. In addition, Python makes it easy to interface with the NFC technology using a Python package called nfcpy so the development and testing of our application can be done with the help of a standardized API. Finally, we will be using programmable NFC tags purchased online to transfer the receipt information to the mobile device. These tags are capable of storing 0.5kB of data and can be rewritten as many times as needed. We believe that this amount of memory will be more than sufficient to store the receipt data that we need in order to test our application.

**Revision numbers and change history**

| **Version Number** | **Version Date** | **Added By** | **Revision Description** |
| --- | --- | --- | --- |
| 1.0 | 5/22/2022 | Naimo Yasin | First draft of the project, no changes have been made. |