GoGoGrocery

System Proposal

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**Executive Summary**

GoGoGrocery is hoping to work with a software development company to aid in the production of their new application. GoGoGrocery has collaborated with OpenXcell to help design, develop, and maintain the GoGoGrocery mobile application. The GoGoGrocery application will help support customers order groceries online and assist drivers in receiving the most optimal routes when delivering. Together, OpenXcell and GoGoGrocery have conducted feasibility assessments and analysis and concluded that the GoGoGrocery application is quite feasible and low risk. Both companies realize that there will be many benefits if an application such as GoGoGrocery is implemented to the public.

The contents of this document will describe in detail the costs, benefits, constraints, requirements, and feasibility of the GoGoGrocery application. A detailed requirements model will outline potential scenarios of users using the application. These provided sections will ensure that the final version of the application meets the expectations and is complete.

1. **Introduction and Overview**

**1.1 Problem Statement**

GoGoGrocery is a company founded by a group of students who plan to develop an application that aids people in getting groceries. In collaboration with OpenXcell, GoGoGrocery has designed and developed a mobile application to enable its customers to get groceries delivered in the comfort of their own home. GoGoGrocery realizes the power of technology can be used to benefit the community. By integrating the use of this application into their company, it would not only be convenient for the customers but also a milestone for the company.

**1.2 Project Vision and Scope**

GoGoGrocery recognizes that not everyone has a mode of transportation to purchase groceries. The elderly, international students and low-income households are some of the demographics that are affected by the problem. GoGoGrocery hopes to eliminate or at least minimize the problem. They believe the GoGoGrocery application can be utilized to cut the cost, time, and effort of customers having to travel to a grocery store. OpenXcell and GoGoGrocery plan to build an application that meets the needs of their customers, delivery drivers, and company. The application is intended to run in the King and Snohomish County at the time of launch. There is a possibility of expanding to other States but, it all depends on the demand of the application. The GoGoGrocery application will be used for grocery orders by the customers, locating the most convenient store for the customer and drivers, and delivery routes for the drivers.

**1.3 Requirements Summary**

To create the application intended, GoGoGrocery has included several major requirements for the application. The requirements are the following:

* Customers need to create an account and log in before using the application. They should also be able to pay online and select which stores they prefer.
* Drivers need to use the application to receive customer orders, find delivery routes and contact the customer.
* The application asks for the customer location to give options to the closest stores. This also allows the application to notify the nearest delivery driver to purchase the groceries.
* Authorized members from GoGoGrocery and OpenXcell can access the system to operate and maintain the application.
* Tracks the inventory of the grocery store chosen to check whether the items are in or out of stock.

**1.4 Stakeholders and Interests**

Several parties will be affected by the creation of the GoGoGrocery application. One obvious member would be OpenXcell. Since OpenXcell is developing the application with GoGoGrocery, it would have a greater stake in the outcome of the application. The list below includes which parties will be affected by the application:

* **Customers:** The people who order groceries from the application.
* **Delivery drivers:** The drivers would want accurate order information provided by the application and a GPS which provides the best possible route.
* **OpenXcell developers:** The developers are part of the team. They want to build an application that meets all the system requirements.
* **Investors:** GoGoGrocery will make sure that any investors will be paid back any loans owed, and any expectations met.

**1.5 Benefits and Costs**

**Expected Benefits:**

With an application such as GoGoGrocery, there will be many benefits. For GoGoGrocery, the benefits include having outsourced drivers. The drivers for GoGoGrocery are ordinary people who sign up to become a driver thus, saving costs for the company. The data collected from customers will also benefit from the ongoing updates to the application. The data may show shopping trends which leads to GoGoGrocery placing the more popular products on the front page of each store. This will also make deliveries more affordable for customers. Especially since the COVID-19 outbreak, it is more difficult for people to get out and get groceries. By having the GoGoGrocery application, customers can order fresh groceries from their favorite stores in the comfort of their own home. This reduced social contact will lower the risk of people with weaker immune systems to get infected by COVID-19. The application also allows the customer to choose delivery times thus, eliminating messy schedules. Especially if the customers are elderly or have disabilities, the application will save their time and effort. Lastly, the use of the application may open customers to trying out different grocery stores thus, possibly helping smaller businesses gain sales and new customers.

**Expected Costs:**

The obvious cost would be the initial cost of developing the GoGoGrocery application. The cost of developing the application will be high. This leads to GoGoGrocery needing to find ways to attract customers into using the application. Additional advertising costs will be included to gain the attention of potential customers for the application to succeed. GoGoGrocery will also need to pay any driver who decides to sign up. The total cost of wages will vary depending on how many drivers sign up. Again, this will be decided on the popularity of the application. Finally, there will also be the cost of maintaining and updating the application to sustain the quality of it.

**1.6 Constraints**

The items below are a list of constraints related to the GoGoGrocery application and OpenXcell:

* The application must run on the most popular devices as customers and drivers will have varying types. For example iPhone and Android. OpenXcell will create an application that runs efficiently and fairly between each device.
* Over time, costs will increase due to upgrading and maintaining the system to make sure the application will always run as intended.
* The goal is to create the application efficiently and with as low of a cost as possible. The project outline must be clear and well defined to make sure there are no misunderstandings and mistakes when developing the application.
* Advertising the application is crucial as the number of users using the application will determine the outcome of success. More advertising means more potential users thus, increasing the popularity of the application.
* Due to the COVID-19 pandemic, the development of the application may encounter a roadblock due to restrictions such as the lockdown rule. This will hinder the development and may decrease efficiency, effectiveness, and increase costs.

**1.7 Recommendation**

It is strongly recommended that OpenXcell thoroughly reads and understands the contents within the system proposal. If OpenXcell finds any concerns or roadblocks after reading the proposal, OpenXcell can make altercations that they believe will better the final application. All altercations must be informed to the GoGoGrocery team. GoGoGrocery recommends having meetings at the end of a week to share progress and keep track of the schedule. If OpenXcell follows the steps, the application will be completed.

**1.8 Document Overview**

This documents currently contain the following sections:

* Introduction and Overview– Information about the application including the benefits, cost, and constraints.
* System Initiation– A copy of the systems request.
* Feasibility Assessment–An analysis of the five areas of feasibility.
* Requirements Definition–A text overview of system services and behavioral properties.
* Requirements Model – A model of requirements and scenarios of the application.
* System Evolution – Outlines the functionality, maintenance, and potential upgrades of the application.
* Conclusions and recommendations – A summary of the system proposal with recommendations about the application.
* Appendices – Answers from a Q & A session.
* Glossary – Definition of key terms.
* Bibliography– A list of sources used in the proposal.

1. **System Initiation**

**2.1 Document Overview**

PIR-00000 *[PIR Number to be assign by the Project Office]* Project Initiation Request (PIR) – L1 v2.0

Project Name: GoGoGrocery Student Name: Nicholas Sutanto

**This Project Initiation Request (PIR) is to be completed for all requests expected to require more than 40 hours of effort or more than 4 weeks of total duration. For larger requests that require more than fifty person-days of effort or with estimated project costs greater than $40,000, this template is used to assess feasibility in order to obtain approval to do the work to scope the project. If approved, the Level 2 version of this template (Project Proposal) must then be completed. Expand each section as needed.**

1. **General Project Information**

|  |  |
| --- | --- |
| **Project Name:** | GoGoGrocery |
| **Two Sentence Request Description:** | *Develop an application that allows users to get groceries without leaving their homes. / Helps people with disabilities or limited resources get groceries.* |
| **Requested Launch Date(s):** | *Mid 2021* |
| **Department(s) Impacted by Project:** | *Technology department* |
| **Project’s Customers:** | *Elderly, People with disabilities, International students without a mode of transportation.* |
| **Date Request Submitted:** | 10/8/20 |

1. **Project Sponsor and Manager**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Project Sponsor** | |  | **Business Project Manager & Requestor** | |
| **Name:** | Andy Cameron |  | **Name:** | Nicholas Sutanto |
| **Title:** | Instructor |  | **Title:** | Student |
| **Department:** | Systems Design |  | **Department:** | Information Systems |
| **eMail:** | acameron@spu.edu |  | **eMail:** | sutanton@spu.edu |

1. **Business Problem or Opportunity (what is the motivation for this request?):**

*Describe the problem or opportunity that you would like to solve. Include a simple, high-level description of the business problems or opportunities that are the catalyst for this request. Focus on the problem or opportunity, not the solution. Be sure to include any date-related dependencies or needs of the project.*

| As an international student, I had problems getting groceries when I first moved to the United States. I had no license so getting a car was out of the equation. It cost a lot of money to get an uber to the supermarket and back. It is difficult for people to get groceries especially if they are elderly, have disabilities, or have no mode of transport. The situation does not get better since COVID-19 has restricted people with weaker immune systems from going out. This app will help eliminate the problem of certain groups of people having difficulty getting their groceries. |
| --- |

1. **Justification, Impact, and Importance**

*What is the financial impact and justification for this request? How will the investment of time, resources, and capital be returned to our company? (Please note any contractual or regulatory requirements associated with the request. If you have an NPV, IRR, or ROI calculation, please provide the link(s) here.)*

**Assumptions**

|  |
| --- |
| * IOS is the priority, may develop the app for other operating systems too. |
| * There is no web version. |

**Competitive Landscape / Context**

|  |
| --- |
| * InstaCart |
| * Amazon Fresh |

**Return, Opportunity, or Impact One Time On-Going**

|  |  |  |
| --- | --- | --- |
| * The drivers are everyday people who choose to sign up through the app. They are outsourced thus, saving money. |  |  |
| * GoGoGrocery will collaborate with the software company which allows shared profits and advertisements. |  |  |

**Intangible Benefits Impact or Value**

|  |  |
| --- | --- |
| * Fresh groceries from any of your preferred stores. |  |
| * Saves time and effort for elderly and disabled customers. |  |
| * Lowers risk of face to face contact especially during COVID |  |

1. **Project Requirements**

*The Project team will gather detailed requirements once the project is approved. Use this section to articulate any critical components of the solution to help with scoping the size and complexity of the project. Do not indicate the type of solution; instead, only list the end results you would expect to receive when the project is complete.*

* 1. **Must Have’s**

|  |
| --- |
| * + 1. The app requesting the user’s location or asking the user to enter their address to check what grocery stores are nearby. The user can choose which stores they want to get groceries from. |
| * + 1. A user is assigned a courier at check out. The app sends out a request to any couriers close to the store and customer. |
| * + 1. The app should display each category of groceries. For example dairy, milk, fruits, healthcare, etc. for customers to easily look for products. |
| * + 1. Allows the customer to pick delivery times from a pool of delivery windows. |
| * + 1. Different methods of payment. PayPal, Apple Pay, and Credit/Debit card. |

* 1. **Nice to Have’s**

|  |
| --- |
| * + 1. Options to choose a replacement for a product if it is out of stock. If not, the courier contacts the customer that they must replace the item. |
| * + 1. Save frequently accessed stores. |
| * + 1. Shows instructions on how the app works the first time using it. |
| * + 1. A section to invite other users to the app or a referral code section. |

* 1. **Don’t Do’s (Out of Scope)**

|  |
| --- |
| * + 1. Monthly subscription system for discounts. |
| * + 1. Do not allow the courier and customer to see any information about each other after the delivery. For example Name, and picture. |

1. **Project Costs (Operating and Capital, One-time and Recurring)**

*This section is typically completed after PIR has been submitted by the requestor, as part of the initial scoping. It captures the effort estimates, capital expenditures, and other costs associated with performing this work and creating the product/solution. If the submitter has thoughts or estimates on what these costs are or might be, or suggestions on how they might be estimated, please include those here. Add short descriptions as needed.*

**Labor Costs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Type** | **Team(s) Affected** | **Low (hrs)** | **High (hrs)** |
| Analysis & Design | Software team | 336 | 672 |
| Development | Software team | 504 | 1008 |
| Testing and Quality Assurance | Software team | 504 | 1008 |
| System Integration | Software team | 0 | 0 |
| Deployment | Software team | 336 | 504 |
| Program Management | Project managers | 336 | 504 |
| Support and Maintenance | Software team | 504 | 1008 |
| Sales and Marketing | Sales team | 168 | 336 |
| **Total** |  | **2688** | **5040** |

**Maintenance Costs**

|  |  |  |
| --- | --- | --- |
| **Description** | **Quantity** | **Cost ($)** |
| Application maintenance | Once every 2 months | $ 15000 |
| Database maintenance | Once a month | $ 3250 |
| **Total** |  | **$ 18250** |

**Capital Costs**

|  |  |  |
| --- | --- | --- |
| **Type** | **Hours / Month Low** | **Hours / Month High** |
| System / User Support | 75 | 120 |
| Business / Process Support | 90 | 105 |
| **Total Support & Maintenance** | **165** | **225** |

1. **Feasibility Assessment**

**3.1 Introduction**

To ensure reaching the goal of developing the application on-time, within budget, and fulfilling the requirements, it is beneficial to provide insight on the feasibility and risks associated with OpenXcell’s development of the GoGoGrocery application. The information stated below represents an analysis of each area of the application. The scale of each feasibility is rated as:

1. Low: There is a minimal concern with this aspect of the application. OpenXcell will have no problems in continuing the project.
2. Moderate: The risks involved are moderately concerning. OpenXcell will take caution in continuing the project.
3. High: There is a high level of concern regarding this area of the application. OpenXcell will need to have more caution and reevaluate these areas.
4. Very High: There are great risks regarding these aspects of the application. These areas must be carefully looked at or else OpenXcell may not continue with this part of the application.

**3.2 Feasibility Analysis**

**3.2.1 Technical Feasibility: Moderate**

1. User Familiarity: Most people are familiar with using an application to orders something online. Thus, the application needs to be familiar to the customers when they are using it. The application should also be familiar to the drivers as they would need to work with a GPS.
2. Analyst/Developer Familiarity: The software development company needs to understand what GoGoGrocery is proposing. We chose OpenXcell as they show a clear understanding of what the goals of GoGoGrocery are and how to develop “MapKit” styled software. Hence, the moderate level of feasibility.
3. Project Size: The project has a clearly defined goal. The application has one purpose, and it is to allow customers to purchase groceries online. GoGoGrocery is a relatively small company thus, the project is moderate in size.
4. Project Structure: The overall build of the application is not expected to change. The main purpose of the application will stay the same even with updates.

**3.2.2 Resource Feasibility: Low**

GoGoGrocery decided to work with OpenXcell as they have employees who are qualified in software development. The team is prepared to tackle any task given to them. OpenXcell also has the hardware, software, and resources needed to design and build the application. A MapKit type software will be implemented to the application to allow the drivers to connect a GPS. Lastly, OpenXcell has a team of software developers who are experienced in analyzing, designing, and implementing the application. GoGoGrocery has no problem working with OpenXcell as they have shown they are reliable in creating great applications hence, the low risk.

**3.2.3 Schedule Feasibility: Very High**

Having the application release on time is one of the most important aspects of the project. The goal is to release the application by late December 2020 or early 2021. The timeline is narrow and GoGoGrocery would like to release the application as soon as possible to help people in need. Especially during the COVID-19 outbreak, schedules have become lackluster. Employees may not be able to show up for work some days. Not to mention that OpenXcell may have other projects going on already. This may continue to disorder the schedule which leads to delays. A clear and slightly flexible timeline will need to be created to ensure OpenXcell to work efficiently. Below is a timeline for developing the GoGoGrocery application.

1. **Analysis & Design:** The phase will start from October 1st, 2020 to October 28th, 2020.
2. **Development:** This phase will start from November 2nd, 2020 to December 13th, 2020.
3. **Testing and Quality Assurance:** This phase will start on December 15th, 2020 to January 27th, 2021.
4. **System Integration:** No system integration will be done.
5. **Deployment:** The deployment phase will be done twice. First on February 1st, 2021 to February 21st, 2021 for the prototype. After feedback from the prototype, the final application will be released by March 2021.
6. **Program Management:** This phase will be done before the final deployment. The project manager will ensure that all goals within the application is met before the final release.
7. **Support and Maintenance:** This phase will be done every month to ensure the system works as intended.
8. **Sales and marketing:** The sales and marketing phase will be done when the application releases. This will ensure that the application will be known to the public. If the development plan goes according to schedule, sales and marketing will be done by March 2021.

**3.2.4 Organizational Feasibility: Moderate**

The organizational feasibility of GoGoGrocery is moderate as OpenXcell will create the application to help GoGoGrocery operate within the community. Although, there may be some risks that arise with a few stakeholders. GoGoGrocery is a relatively new company which means the application will be built from the bottom up thus, the company will need to train more employees and potential drivers about the system to use it to its full capability. As mentioned before, the largest risk from an organizational standpoint is the outreach of the application. Without people knowing about the application, GoGoGrocery will not be successful. When delivering the product to the consumer, it should also be user-friendly, or else they would avoid using the application, and all the advertising is done would be put to waste.

* + 1. **Legal and Contractual Feasibility: Moderate**

As an application that requires the information of the customers and drivers, GoGoGrocery will need to wary about the security risks of the application. An agreement such as a contract can be made with a data storage company to ensure that the data stored is secure. Even with a contract, the risks may still occur but in a more controllable environment. OpenXcell and GoGoGrocery will also create a contract about the ownership of the application. Overall, the legal and contractual feasibility is moderate.

**3.3** **Additional Comments**

* It would be beneficial if the GoGoGrocery application had a step by step tutorial on how to use the application for new users.
* As GoGoGrocery gains popularity, different teams may have to be created to maintain the application on different mobile devices (e.g. iPhone, Android,…).
* It is crucial to advertise the GoGoGrocery application correctly as success depends on it.

**3.4 Conclusion**

After analyzing the five feasibility categories and their potential risks, it is considered that GoGoGrocery is quite feasible. Most of the risks GoGoGrocery will face are manageable. The most important risk that needs to be looked at carefully is the schedule feasibility. Once GoGoGrocery and OpenXcell have overcome the issues mentioned, they can continue with the project.

1. **Requirements Definition**

**4.1 Introduction**

This section of the proposal lists the functional, data, and non-functional requirements of the application. A functional requirement refers to the features, capabilities, and security of the application. Data requirements describe the data that the application needs to manage which includes inputting, outputting, and storing data. A non-functional requirement relates to the characteristics of the application such as performance and reliability. The information below lists what requirements each section presents.

**4.2 Functional Requirements**

**1. Functional Requirements for the customer.**

* Customers must make an account using their email and a created password to log in to the application. They are given a choice to save their information during the login process.
* Customers must be able to select a grocery store of their choice and save it as their preference.
* Customers must be able to look at previous items bought. This allows ease of access to favorite items bought.
* Customers must be able to pay for groceries in different ways. For example, Apple Pay, PayPal, and Credit/Debit card. The application should also ask the customer if they would like to save their payment information for easy access.
* Customers must be able to pick a delivery time from a pool of delivery windows.

**2. Functional Requirements for the application.**

* The application must request the customer for their location to search for grocery stores closest to them. After receiving the location, the application then lets the customer choose which store they prefer.
* The application must display the available categories of items in a store, For example, dairy, fruits, and poultry. This way, it is easier for customers to search for their desired items. The application should give suggestions to similar items if the item chose is out of stock. The customer can also search for the item instead of going through a category.
* The application should assign the customer a driver to deliver their groceries. The customer can contact the driver and vice versa.
* The application must provide a route for delivery with a built-in MapKit tool. (Drivers can decide not to use this).
* The application must automatically log out of the customer or driver’s account if there is any suspicious activity detected. This will deny any further security breach towards both accounts.

**3. Functional Requirements for the drivers.**

* Drivers must make an account using their email and a created password to log in to the application like the customers but, they also must sign up to be a driver.
* The drivers must be able to view the items the customers purchased and confirm with the customer for replacements in case the item is out of stock.
* The drivers must be able to use a GPS to find optimal routes and change routes in the event of roadblocks.
* The driver must be given clear instructions regarding the safe delivery of grocery items.

**4.3 Data Requirements**

* When a customer creates an account, the GoGoGrocery application must store the customer’s name, address, store preferences, and payment information. The application should also save the customer’s preferred items.
* GoGoGrocery must process customer orders.
* The application stores the driver’s name, driver’s license, information about their vehicle, and their location (location is needed if a customer decides to contact customer service about their delivery).
* The application should output a unique order number for every order for reference.

**4.4 Nonfunctional Requirements**

**1. Operational Requirements**

* The GoGoGrocery application must run on multiple platforms. For example, IOS and Android. There is no plan for web browsers as of now.
* Customer and driver information will be stored in a database.
* Drivers will use implemented GPS tools for directions.
* The application must have a simple GUI for ease of use.

**2. Performance Requirements**

* GoGoGrocery must process actions in a reasonable time on all devices. Processes such as searching for items, connecting to a driver, and checkout.
* GPS must be quick enough to make changes to routes when there are roadblocks present or when the driver uses an alternate route.
* The performance of the application must not be entirely reliant on connection speed. For example, faster connection speed results in faster performance while slower connection speeds result in slower performance. There should be a middle ground.

**3. Security Requirements**

* Encrypting customer and driver data is important to lower the risk of data getting stolen. GoGoGrocery could use the Advanced Encryption Standard (AES) to encrypt. AES is one of the most secure forms of encryption.
* Only selected staff can access customer data.
* Routine security checks on the application’s code to check if there are any unwanted changes to the code. Wanted changes should be documented to avoid confusion.
* Drivers and customers will not be able to see each other’s contact information after the delivery is finished.

**5. Service Requirements**

* GoGoGrocery is only available as a mobile application for now.
* GoGoGrocery can only be used starting 5 am to 1 am as it would be more difficult to search for a driver or open store at times after that.
* GoGoGrocery will only be available to Snohomish and King Country for now.

**6. Development Requirements**

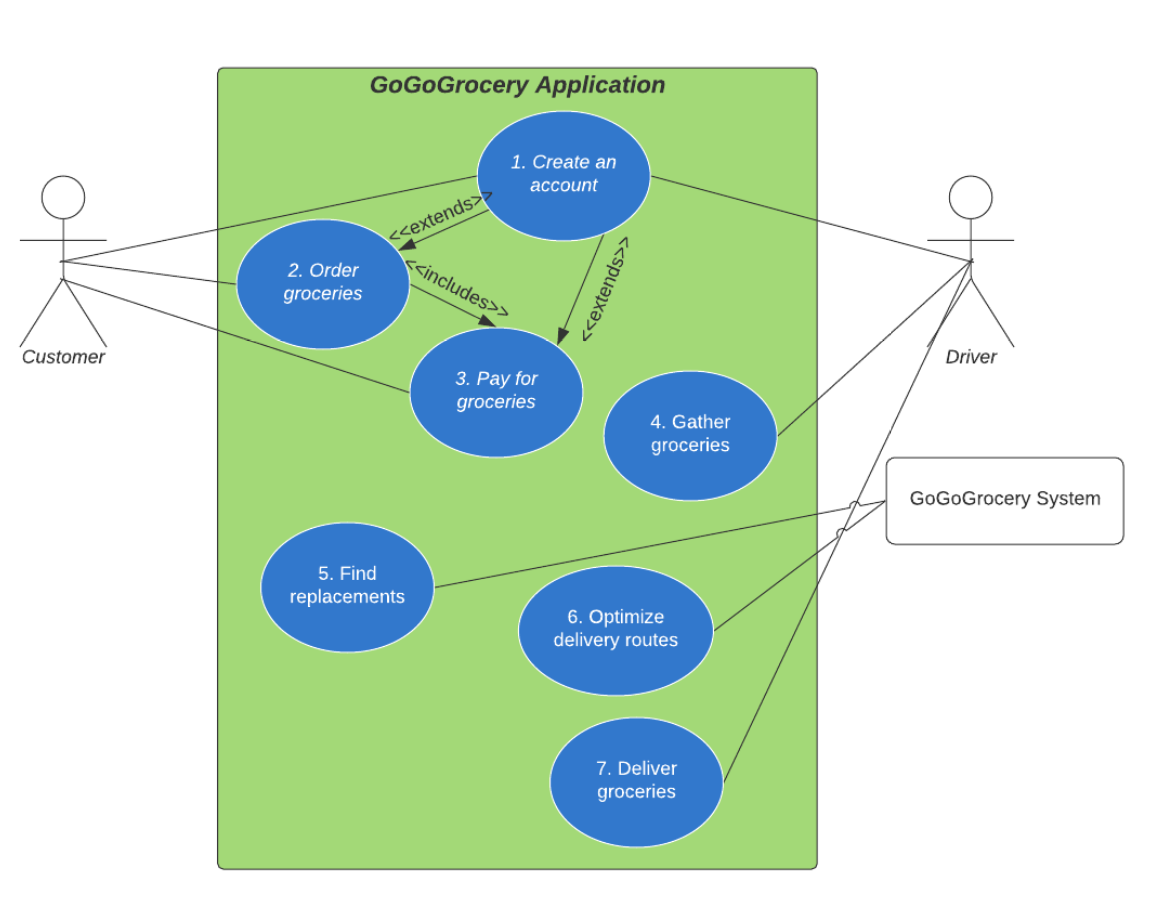
* GoGoGrocery will be developed by mid-2021 or latest by late 2021
* The goal is to develop GoGoGrocery in a cost-efficient manner.
* The schedule for developing the application is must be somewhat flexible due to the circumstances of COVID-19.

1. **Requirements Model**

**5.1 Introduction**

The following section will display and document use-case diagrams of the GoGoGrocery application. The section will describe each use-case diagram in detail and visually diagrams how the system works. The common scenarios of the application are represented throughout the requirements model by the use-case diagrams. Each use-case diagram organizes the functional requirements mentioned in the sections above. Below is a table of symbols used in the use-case diagram and their descriptions.

|  |  |
| --- | --- |
| <<Non-human actor>>  Actor | An actor is someone or something that needs to interact with the system to relay information. Actors can be human or non-human. |
|  | A line represents the interactions between the actors and the use-cases |
| <<include>> | Include represents the inclusion of the functionality of one use-case within another. The arrow is drawn from the base use-case to the used use-case. |
| <<extends>> | Extends represent the extension of the use-case to include optional behavior. It is drawn from the extension use-case to the base use-case. |
| 1. Use-case | A use-case represents the processes the GoGoGrocery application will execute. It can include and extend other use-cases. |

**5.2 Use-Case diagram**

**5.3 Use-Case Description**

|  |  |  |  |
| --- | --- | --- | --- |
| **Use-Case name**: Create an account | | **ID**: 1 | **Importance**: High |
| **Primary actor**: Customer | **Use-Case type**: Essential | | |
| **Stakeholders and interests**:  Customers and drivers can access their accounts through this login page. | | | |
| **Brief description**:  This use-case describes how the customers and drivers will be able to login into the GoGoGrocery application. After logging in, the application will recognize the user and display what kind of account they have. | | | |
| **Trigger**: The customer or driver will enter the credentials and click login.  **Type** (circle one): External Temporal | | | |
| **Relationships**:  **Association**: Customers, and drivers.  **Include**: N/A  **Extend**: 2. Order groceries, 3. Pay for groceries  **Generalization**: N/A | | | |
| **Normal flow of events**:   1. The customer will enter the application and choose to log in or create an account. 2. The customer will then enter their email and password. 3. The GoGoGrocery application will let the customer in the application. 4. If the user is new, the application will have a choice of whether the user wants to be a driver. 5. If the user is a returning user, the application will recognize whether the user is a driver or customer. Drivers will also be able to use the application as a customer. | | | |
| **Subflows**:  N/A | | | |
| **Alternate / exceptional flows**:   * If the user enters the wrong password, or an unrecognized email, prompt an error message and allow the user to re-enter their information. * If the user enters the wrong information five times, lock the account for 30 minutes. * Allow the user to change their password. | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use-Case name**: Order groceries | | **ID**: 2 | **Importance**: High |
| **Primary actor**: Customer | **Use-Case type**: Essential | | |
| **Stakeholders and interests**:  Allows customers to view the available grocery items. Customers can search through different categories of groceries or search for a specific item. | | | |
| **Brief description**:  This use-case describes how customers can view their entire order on one page and is given a choice of different types of payment. | | | |
| **Trigger**: The customer uses the GoGoGrocery application to order groceries.  **Type** (circle one): External Temporal | | | |
| **Relationships**:  **Association**: Customers  **Include**: 3. Pay for groceries.  **Extend**: N/A  **Generalization**: N/A | | | |
| **Normal flow of events**:   1. The customer accesses the GoGoGrocery application and logs in to their account. 2. The customer will be asked to enter their location or given a prompt to access their location. (Due to the Phase 2 COVID-19 approach, there will be a limited number of stores open). 3. The customer will choose their preferred store. 4. Customers will then browse for the items they are looking for based on categories or a search result. 5. The customer adds or removes items from their cart. 6. After the customer has picked all the items, they can continue and order their groceries. | | | |
| **Subflows**:   * Customers can click “more info” on an item’s page to learn about the specifics of the item. | | | |
| **Alternate / exceptional flows**:   * The customer needs to create an account to order groceries. * With an account, the application can save the preferred grocery store and item choice. * If a customer decides to not order the items, the items will stay in the cart until the customer removes it or left in the cart for 24 hours. | | | |

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| **Use-Case name**: Pay for groceries | | **ID**: 3 | **Importance**: High |
| **Primary actor**: Customer | **Use-Case type**: Essential | | |
| **Stakeholders and interests**:  Customer: Customers can pay for their groceries easily and securely. | | | |
| **Brief description**:  This use-case describes how the customer can pay for their groceries online with ease and securely. | | | |
| **Trigger**: The customer places a grocery order  **Type** (circle one): External Temporal | | | |
| **Relationships**:  **Association**: Customer  **Include**: N/A  **Extend**: 1. Create an account  **Generalization**: N/A | | | |
| **Normal flow of events**:   1. The customer will review the groceries in their cart. They should double-check the quantity of each item. 2. Once the customer has reviewed their order, they can choose their delivery window preference. 3. The customer then can choose a payment method such as credit card, Apple pay, or Paypal. 4. The customer will receive a confirmation email to the email they signed up with about their order. 5. A unique order number is given to the order and saved into the system. This order number can be brought up if there are any inquiries about the order. | | | |
| **Subflows**:  N/A | | | |
| **Alternate / exceptional flows**:   * The customer must log in to pay for the order. * The customer can choose to save payment information for easy checkout. * The customer can update their delivery address on the payment page. * If there is a problem with the payment, the application will prompt notification and allow the customer to re-enter their payment information. | | | |

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| **Use-Case name**: Gather groceries | | **ID**: 4 | **Importance**: High |
| **Primary actor**: Driver | **Use-Case type**: Essential | | |
| **Stakeholders and interests**:  Driver: The drivers are looking for a simple list of items the customer has ordered. | | | |
| **Brief description**:  This use-case describes the process after the customer has placed an order. The order is sent to the driver and then they will proceed to gather the groceries. | | | |
| **Trigger**: The customer finalizes their order.  **Type** (circle one): External Temporal | | | |
| **Relationships**:  **Association**: Driver  **Include**: N/A  **Extend**: N/A  **Generalization**: N/A | | | |
| **Normal flow of events**:   1. After the customer finalizes their order, a list of items they have ordered will be sent to the designated driver. 2. The funds that the driver will be using is already provided by the customer’s payment. 3. When the driver is collecting groceries, some items may be out of stock. The GoGoGrocery system will offer some replacement items to be notified to the customer (See next use-case). | | | |
| **Subflows**:   * The driver will have an option to message the customer about replacement items. | | | |
| **Alternate / exceptional flows**:   * The driver must log in to the driver account of the application. * The driver can choose to notify the customer about replacement items or let the system do it. * Once the order has been gathered, the driver will then notify the customer that their order is complete and ready to be delivered. | | | |

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| **Use-Case name**: Find replacements | | **ID**: 5 | **Importance**: Medium |
| **Primary actor**: GoGoGrocery system | **Use-Case type**: Essential | | |
| **Stakeholders and interests**:  Customers: The customer would want to either remove the item from their cart or find a replacement item if the chosen one is out of stock.  Driver: The driver is notified of a replacement item by the system. | | | |
| **Brief description**:  This use-case describes how the GoGoGrocery system will notify the customer of a potential replacement item if the chosen item is out of stock. If the customer accepts the replacement, the driver will be notified about it. | | | |
| **Trigger**: The customer finalizes the order.  **Type** (circle one): External Temporal | | | |
| **Relationships**:  **Association**: GoGoGrocery System  **Include**: N/A  **Extend**: N/A  **Generalization**: N/A | | | |
| **Normal flow of events**:   1. When the customer was choosing the items, there will be recommended replacement items within the same price range shown. 2. After the customer finalizes the order, the driver will gather the items. 3. If the customer chooses to accept the replacement, the driver is notified by the system to go with the replacement. 4. If the customer does not accept the replacement, the item is removed from the list and the amount will be refunded. | | | |
| **Subflows**:  N/A | | | |
| **Alternate / exceptional flows**:  N/A | | | |

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| **Use-Case name**: Optimize delivery routes | | **ID**: 6 | **Importance**: High |
| **Primary actor**: Driver, GoGoGrocery system | **Use-Case type**: Essential | | |
| **Stakeholders and interests**:  Driver: The driver would want the most efficient route for delivery.  GoGoGrocery system: The system would want to provide an efficient delivery route that can be changed when necessary. | | | |
| **Brief description**:  This use-case describes how the GPS in the GoGoGrocery application should provide an accurate and efficient route for delivery. GPS should also be able to change routes based on real-time decisions and roadblocks. | | | |
| **Trigger**: Driver logs into GoGoGrocery and is assigned an order to gather.  **Type** (circle one): External Temporal | | | |
| **Relationships**:  **Association**: Driver, GoGoGrocery system  **Include**: N/A  **Extend**: N/A  **Generalization**: N/A | | | |
| **Normal flow of events**:   1. The driver will have to log into the GoGoGrocery application. 2. After getting the assigned order and gathering the items, the GoGoGrocery system will automatically generate a route for the driver. 3. The route will be displayed on the application via a MapKit for the driver to follow. | | | |
| **Subflows**:  N/A | | | |
| **Alternate / exceptional flows**:   * The driver can input the address of the customer to an external GPS app if they choose to. | | | |

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| **Use-Case name**: Deliver Groceries | | **ID**: 7 | **Importance**: High |
| **Primary actor**: Driver | **Use-Case type**: Essential | | |
| **Stakeholders and interests**:  Driver: The driver will want a safe way to deliver groceries to the customer during the COVID-19 pandemic. | | | |
| **Brief description**:  This use-case describes how the driver will be given steps to safely deliver groceries to the customer. A checklist of steps will be shown to the driver in the application. | | | |
| **Trigger**: The driver finishes gathering the groceries.  **Type** (circle one): External Temporal | | | |
| **Relationships**:  **Association**: Driver  **Include**: N/A  **Extend**: N/A  **Generalization**: N/A | | | |
| **Normal flow of events**:   1. The driver will have to log in to the GoGoGrocery application. 2. The driver will be assigned a customer to deliver to. 3. Once the driver accepts the customer, they will gather the groceries. 4. The application will provide a route for delivery. 5. Once the driver has arrived, a notification with a checklist will show up on the application with guidelines on how to deliver the groceries safely for the driver and customer. The checklist includes:    1. Both customer and driver must wear a mask.    2. Sanitize hands before and after delivery.    3. Contactless delivery unless stated otherwise. | | | |
| **Subflows**:  N/A | | | |
| **Alternate / exceptional flows**:  N/A | | | |

1. **System Evolution**

The goal is to develop the GoGoGrocery application as cost-efficient and error-free as possible. As the GoGoGrocery application continues to be used, maintenance and upgrades will have to be done to be up to date and run as planned. After the final development of the GoGoGrocery application, GoGoGrocery will still be collaborating with OpenXcell to further maintain and upgrade the application. OpenXcell is responsible for conducting routine maintenance and repair. Once there is a definite show of success by the application, GoGoGrocery can implement features that were planned but were not able to be implemented. The features may be beneficial for the future of the GoGoGrocery application. These features that were planned include:

* A monthly payment plan for added discounts and promotions
* Expand to multiple locations out of state.
* A web version of the application.

1. **Conclusions and Recommendations**

Overall, GoGoGrocery and OpenXcell believe that the GoGoGrocery application is quite feasible and would recommend continuing its development. The risks determined are mostly low and are manageable by OpenXcell. We believe that the development of the GoGoGrocery application will benefit the community, especially during COVID-19. A wide range of customers will benefit from the ease of receiving fresh groceries from the comfort of their own home. Finally, OpenXcell recommends meeting with some potential customers and drivers to receive feedback regarding the application. They could also add recommendations for additional features or requirements. OpenXcell and GoGoGrocery are excited to work on such a beneficial project and look forward to starting the project as soon as possible.

1. **Appendices**

Q & A Session

1. **How will GoGoGrocery drivers be paid?**

* GoGoGrocery drivers will be paid by the hour depending on how much orders they have received. Their earnings will also be increased through customer tips.

1. **Will your application be available for all platforms?**

* Our application will run on popular mobile operating systems such as ios, and android. There is no plan to develop a website version of the application yet.

1. **Should an account be created to access the application?**

* Yes, an account must be created to use the application. We require an account to access the application because it allows the application to track your favorite items and stores.

1. **Is there a certain budget/requirement to hire drivers?**

* All drivers for GoGoGrocery will be people from the community who sign up to be a driver. As long as the individual has the minimum requirements, required documents, and passes the screening.

1. **When will the application be available for public use?**

* There is no set date for the application to be public yet. A timeframe is set (March 2021) but it may be delayed due to the ongoing COVID-19 pandemic.

1. **What payment methods are available?**

* Available payment methods include Apple Pay, PayPal, and debit/credit card. There is no option for cash payment as the driver will need the customer’s funds to pay for the groceries while in the store.

1. **Glossary**

*OpenXcell:* A mobile app development company based in the USA.

*GPS:* Global Positioning System, a satellite-based navigation system.

*AES*: Advanced Encryption Standard, a process of encrypting electronic data.

*GUI:* Graphical User Interface, an interactive visual interface that allows users to interact with the computer.

*MapKit:* A framework that allows applications to display maps.

*iOS*: A mobile operating system developed by Apple.

*Android*: A mobile operating system developed by Google.

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