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MSc Individual Project (7CCSMPRJ)  
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# **1. Introduction**

## **1.1. Business Opportunity**

As the concept of entrepreneurship has gained momentum and as the digital era evolved, more and more business opportunities have come up, encouraging the appearance of new software-based companies.

One such market is composed of software solutions that promote already existing retail businesses, in order to increase their sales, as well as providing customers a unified platform for their specific needs. Through such platforms, the customers are able to select the best offer for their needs based upon proximity, price, quality etc. Such solutions could target various vendors of products or services, from restaurants and bars to bicycle repair shops and barber shops, thus covering a great number of markets.

One problem that such start-ups are facing is that even though they have identified a specific business opportunity, they are discouraged by the need to develop a software solution. As most of the entrepreneurs do not have advanced knowledge in Software Engineering, they need to turn to software companies for the development of their product, which is often costly.

## **1.2. Aims**

The scope of this project is to develop a platform that provides customizable software products tailored for such a business idea. Based upon the input from the start-up, the system generates a complete software solution that organizes and presents the list of offers for the targeted range of products or services in the form of both a web platform, as well as a mobile application.

The features of the software solutions cover all of the necessary functionalities looked for in a retail app. The already existing vendors and their products are displayed in a list sorted by distance, price, review mark or category. The customers can also view the list of vendors and their specific offers on an interactive map for better visualization. The selection of the best offer is aided by descriptions of the products, photos and review marks. Once the customer decides on a certain product, he/she has the option of instant buyout, generating a receipt that can later be redeemed at the specific vendor. In order to provide directions to the vendor, the customer can either choose to view a map with the shortest route or follow 3D generated images that guide him/her by using the camera through the means of augmented reality. Afterwards, the customer has the option to leave a review as well as offering a mark for his experience for future customers. The mobile applications also provide the means of push notifications for the latest special offers from their targeted vendors, as well as geolocation notifications that let them know they are in the proximity of a vendor. The start-up can choose any of these functionalities for their software solution.

## **1.3. Technical specifications**

The software product targeted by this project has 5 major components, first of which is the webpage where the clients can customize their desired end-result, based upon filtering the functionalities that are to be included, as well as previewing the design of the app. Afterwards,

they submit the request and the desired solution, formed of both the web and mobile applications, as well as the server files needed for the centralization of the data, is generated automatically.

The other 4 components form the customizable system that will eventually be sent to the client in the required form. They are the web and an iOS applications, the server and the database. The end system will follow the 3-tier architecture, where the mobile and web applications form the presentation layer. These contain all the graphic components used to display the data as well as providing the means through which the end-users interact with the platform. The server is the main processing component, where the actual logic behind the system resides, also known as the application layer. It is responsible for monitoring the transactions, sending the data that needs to be displayed to the presentation layer and restricting unauthorized access. Finally, the data layer is represented by the database, which contains all the information needed by the system. A specific structure will be generated for each software solution based upon the required functionalities, leaving only the insertion of the data to the client. Each component is isolated, communicating with each other through specific protocols, thus ensuring modularity and security.

## **2. State of the art**

### **2.1. Too Good To Go**

One such existing software solution is the "Too Good To Go" mobile application. It targets restaurants and bars that are legally required to throw away excess food at the end of the day and provides a platform through which customers can buy the remaining food at very low prices. This benefits both the customers and the restaurants by increasing sales, offering a cheap food alternative and lowering the great amount of food that is thrown away. Even though "Too Good To Go" targets only unsold food, it has shown great business value, expanding from only a London-targeted application to over 10 European cities. The great success of this application is the main incentive for this project's target. This is but one of numerous niche markets that benefit from the design of such a software solution. The rest of the markets will be more easily available using this project's solution.

The "Too Good To Go" consists of a mobile application, both on Android and iOS, which displays the offers either in a list or on a map based on proximity and stock. Filtering of the restaurants based on category has also been added in a recent update to their mobile solutions. The customers have the option to instantly buyout any specific offer and can only redeem it at the restaurant between closing hours. Selection of the favourite eating places is available for the customers. Another functionality of this mobile application is the saving of the credit card details for more seamless future transactions, as well as increased security. In addition, it offers the possibility to rate previous experiences for future reference of other customers. The creators of the system did not add many functionalities, as they focused more on the scope, thus providing a simple and quick mobile solution.

## 2.2. Appsmakerstore

The "Appsmakerstore" system is a web platform that provides the means to create a customizable retail mobile application for both the iOS and the Android mobile operating systems. Even though it does not target multiple vendors based upon a specific type of product or service, its relevance derives from the feature of deploying mobile software solutions only by using a functionalities filtering system and a graphical interface for the clients. This is very similar to this project's solution, the only differences being the overview design of the generated mobile applications and the list of functionalities that the client can choose from.

As the "Appsmakerstore"'s generated applications fall under the retail category, they provide targeted functionalities that can be included in the client's tailored application. The list includes displaying the available products, managing the customer's shopping cart, real-time order and requests processing, displaying promotions, photo galleries, push notifications and loyalty systems. In addition, one of the more interesting features is GEO auto-PUSH messaging that has the scope to attract customers when they are in the proximity.

The system also allows the main client to manage and update the mobile applications' content remotely, further enhancing the possibilities of seamless customization. However, this is a feature made possible through the "Appsmakerstore"'s hosting and maintenance package, through which they even publish the clients' solutions to the AppStore and Google Play. However useful this option is, this project's system aims to generate the software solutions and to offer the clients complete control over their product.

## 3. Project Management

This project will follow an Agile approach, organized into 5 distinct phases. Each phase will start with an analysis of the already accomplished work and a plan will be established for the direction in which to proceed. However, in order to illustrate the expected timeline of the project, a Gantt chart has been developed.

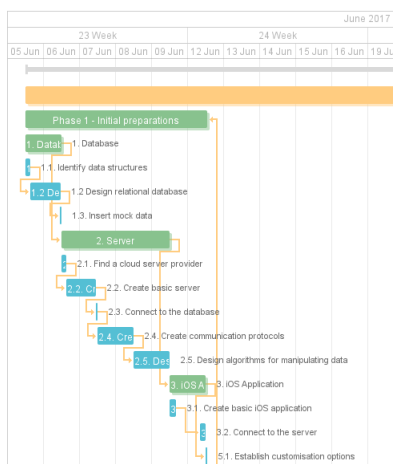


Fig. 1. Phase 1 – Initial preparations

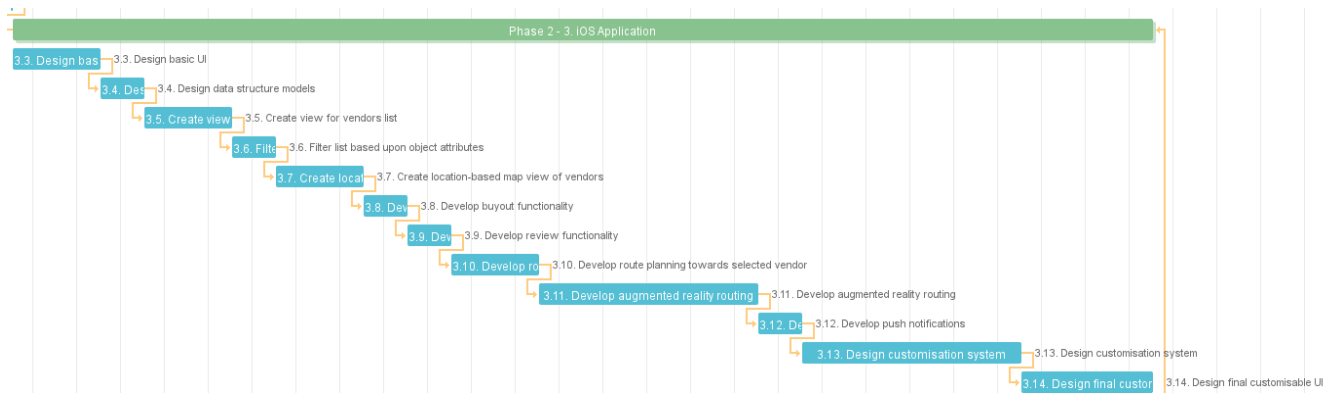


Fig. 2. Phase 2 – iOS Application development

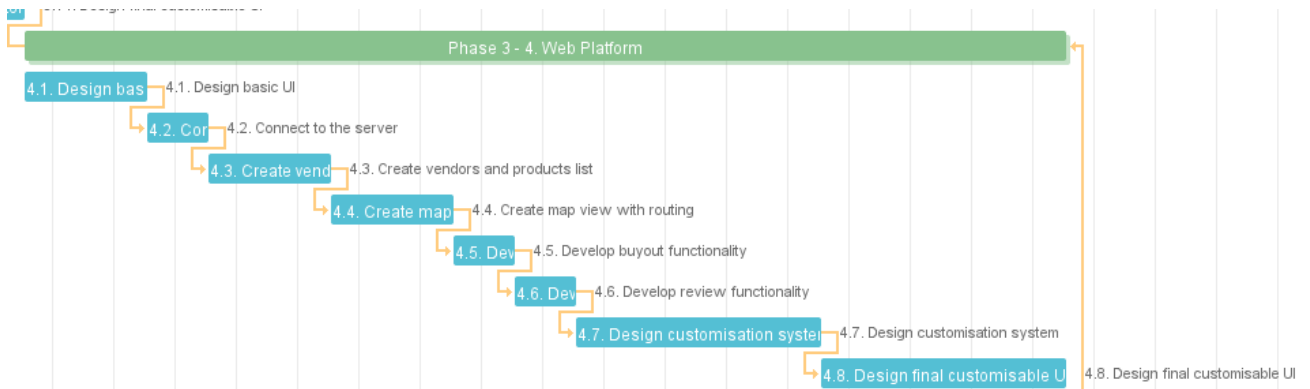


Fig. 3. Phase 3 – Web Platform development

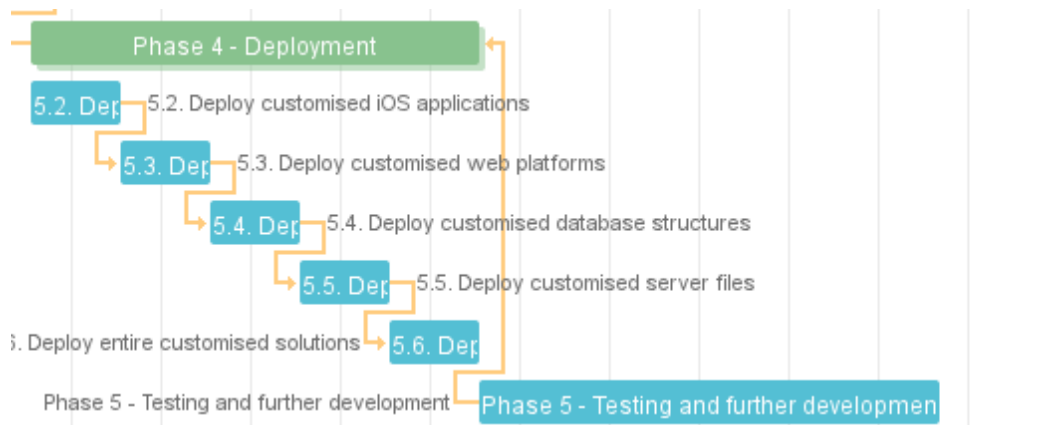


Fig. 4. Phase 4 – Deployment, Phase 5 – Testing and further development

## References

- Appsmakerstore.com. (2017). *Make Your Own Retail App*. [online] Available at: <https://appsmakerstore.com/build-your-own-retail-mobile-app-yourself-no-coding-needed> [Accessed 28 Apr. 2017].
- Toogoodtogo.co.uk. (2017). *Too Good To Go « Eat well. Save Money. Save the planet..* [online] Available at: <http://toogoodtogo.co.uk> [Accessed 28 Apr. 2017].