Association for Information Systems
Student Chapter of University of
Gdansk

Project Documentation

Apollo

save food.save world

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Apollo

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1. Problem situation

In highly developed countries, wastage is a well-known problem. Both children and parents, employees and managers, mothers and fathers - each of us uses the goods at their disposal, not as sufficiently efficiently as we can.
We can change it.
The ground to do it is consciousness.
The next step is action.
We will show you how to act to help yourself and the environment.

Sustainable development is a strategy for the life of present and future generations. We want to support the resolution of problems that have been recognized by the United Nations. Our goal is to support the fight against poverty ("No poverty", Objective No. 1) and "Responsible Consumption and Production" (Objective No. 12).

Let's look at the facts:

- If the global population reached 9.6 billion by 2050, the equivalent of nearly three planets could be required to provide the natural resources needed to maintain the current lifestyle.
- 2 billion people are overweight or obese;
- Each year, approximately ⅓ of all food produced - equivalent to 1.3 billion tons worth 1 trillion dollars - ends in garbage bins end up in decay in consumers and retailers containers or breaks down due to bad practices in transport and harvest

We need the change. Now.

2. What Hera is and how it works?

2.1. General Description

Apollo is a multi-platform mobile application. The main function of Apollo application system is improve – optimize food sales by connect a group of consumers with sellers.

Apollo application is based on two modules:

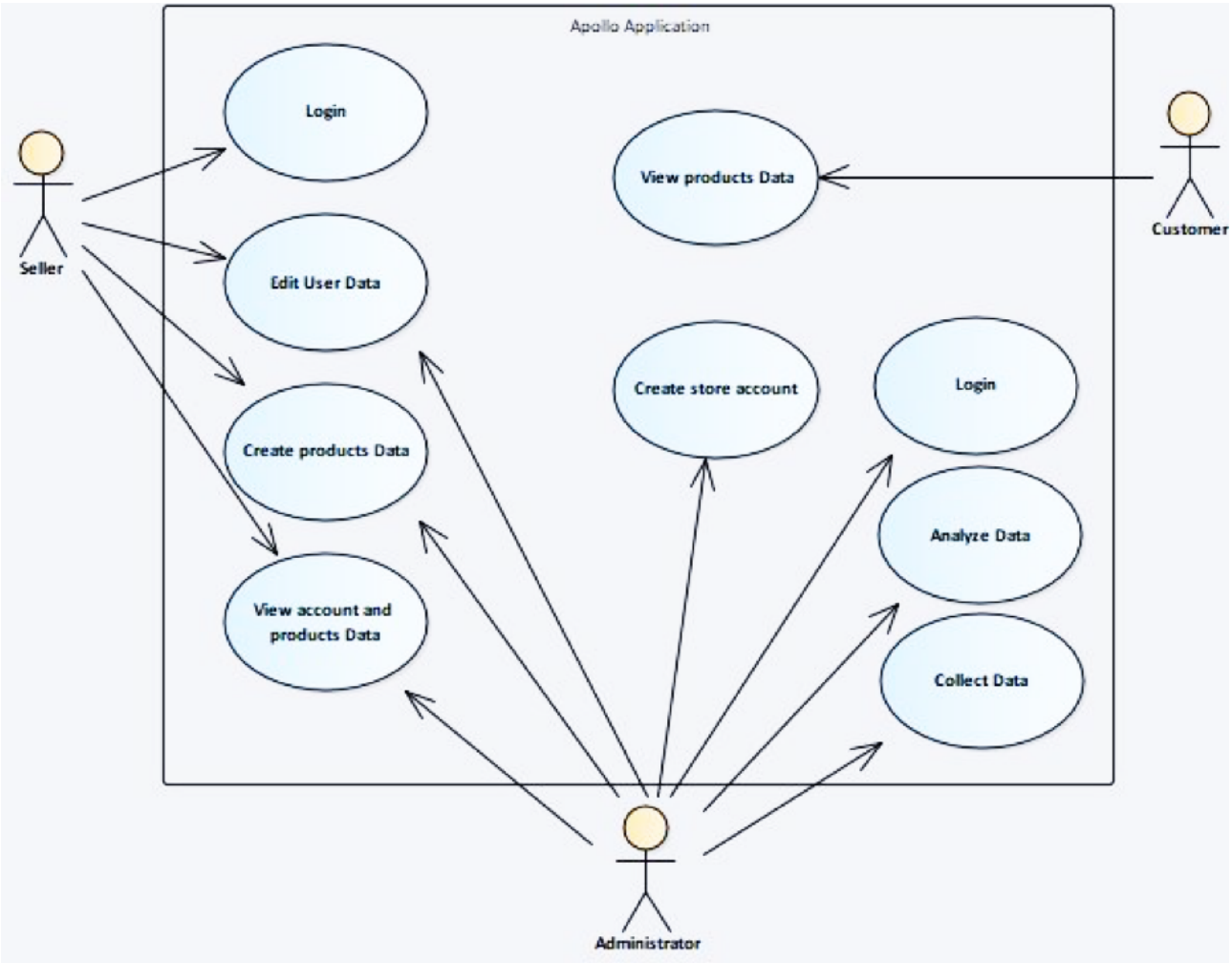
Sellers – Sellers will inform customers using application about the upcoming date of expiration of food products with lower price (30-90%), An additional element encouraging to purchase is the use of beacons connected with smartphones.

Customers – Customer using map or browser in our applications can find products with lower price. When customer is near the store with beacon, then can receive a message on the phone with discounted products.

Food wasting is such a huge problem. Our application helps to avoid wasting food by informing where users can buy food goods with short expiry date. Customer can buy food even 90% cheaper and the seller can still earn some money and do not have to pay for utilization of food.

To present the specification of "Apollo" system we used UML - Use Case Diagram (Enterprise Architect tool).

Fig. 1. Use Case Diagram for "Apollo" Application



Apollo is using multiplatform tools. Technology in which this application will be developed, is called Ionic. Ionic is an open source, front-end Software Development Kit for developing Hybrid Mobile Applications using web technologies such as HTML, CSS and JavaScript. It provides mobile optimised web technology based components as well as native APIs using Cordova and Ionic Native.

The top reasons for making the switch from native to hybrid, based on independent research and testimonials, are:

1. Speed. Building for multiple platforms from a single codebase often makes delivering cross-platform apps 2-3x faster than native.

2. Efficiency. Forrester estimates that hybrid can save an organization between 75-80% in support and porting costs compared to native.

3. Omnichannel. Hybrid apps can run anywhere the web runs - on a desktop or mobile browser, as a mobile app, or PWA.

Hybrid apps are essentially native apps. They're downloaded from a platform's app store or marketplace, and access the same native features and hardware-based performance acceleration as any app built with a native SDK. The key difference is that hybrid apps are built using open web technologies like JavaScript, HTML, and CSS, rather than the proprietary or specialized languages used by iOS, Android, and others. That means anyone with a web developer skill-set can build an app using the hybrid approach.

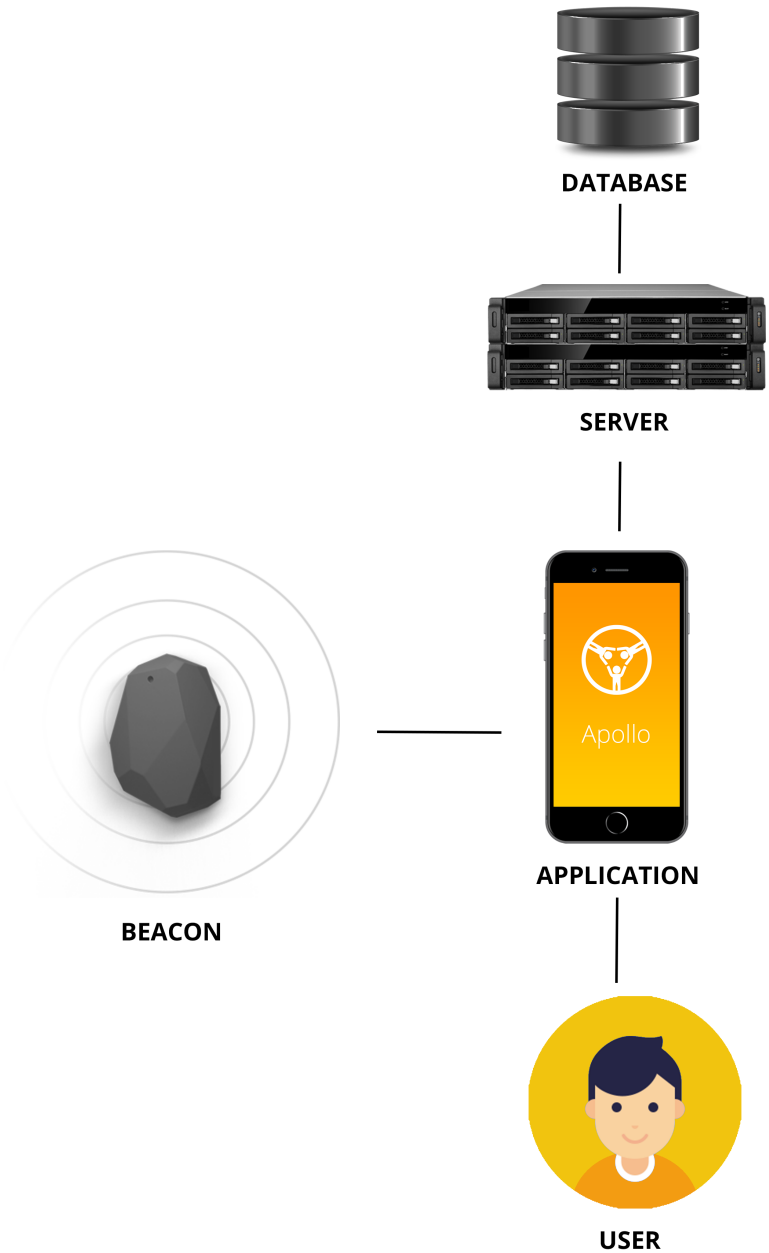
Apollo application based also on social engaged like students. We want to support this fight and make the society more informed about important matters concerning on society and charity actions. With the "Apollo" application you will be able to get information not only about discounted food with a short expiration date, but also about charity campaigns in our area and important events related with helping other people (example screen below). Each user will be able to check using the map placed in the application, where the store is located, what goods to sell, how much time is left to expire and where you can take part in a charity event. Thanks to the beacons, small devices provided to our partners, users can be informed immediately about nearby discounts or actions. When you are joining an event, you get all needed information immediately and you can sign up with one click only. From our side, we offer a simple and intuitive user interface that allows you to add the necessary information about the product.

Our product is unique. There is no similar offering solution on the market.

2.2. System architecture

Main communications is based on cellular data – seller (phone)-servers-customer (phone). Communication between mobile Application “Apollo” and beacon is allowed by Bluetooth.

Fig. 2. “Apollo” system local architecture



A beacon is a small Bluetooth radio transmitter. it repeatedly transmits a single signal that other devices can see. It broadcasts a radio signal that is made up of a combination of letters and numbers transmitted on a regular interval of approximately

1/10th of a second. A Bluetooth-equipped device like a smartphone can "see" a beacon once it's in range. Beacon communicate hardware is relatively simple, but the way it triggers actions. The beacon sends out its ID numbers about ten times every second. A nearby Bluetooth-enabled device, like your phone, picks up that signal. When a dedicated app recognizes it, it links it to an action or piece of content stored in the cloud and displays it to the user.

Global Positioning System enabled In smartphone we use to navigate position of user to specific shop/event. On the map user can find store with discount and specific food item. Interface of ours application in easy to use, with clear and automatic interface. Core of application is build in mathematical functions, with access from anywhere at any time.

3. Innovativeness of "Apollo"

Apollo will involve you and your loved ones. You will become part of a network of people for whom it matters, what they do and where they live.

How to help others and have fun? In the Apollo app you can easily find events and business premises that support local charity events. Or you can donate directly from the application.

Our app helps you avoid wasting food by telling where users can buy food products with a short shelf life. You can buy food by up to 90% cheaper, and the seller can still earn some money and does not have to pay for use.

Stay up to date with information on important charity campaigns around the world

4. Business aspects of solution

4.1. Distribution

Our target group of users is focus on small shops and individual users.

KEY METRICS - Minimum 10 000 users in less than 3 years. Start to generate revenue in less than 2 years.

COST STRUCTURE - Development tools and maintenance of infrastructure. Product advertising costs.

REVENUE STREAMS - For individual users (clients) the application is free. We earn on commissions from the product sold by the store (5-20% of the product sold value) and from ads in the application.

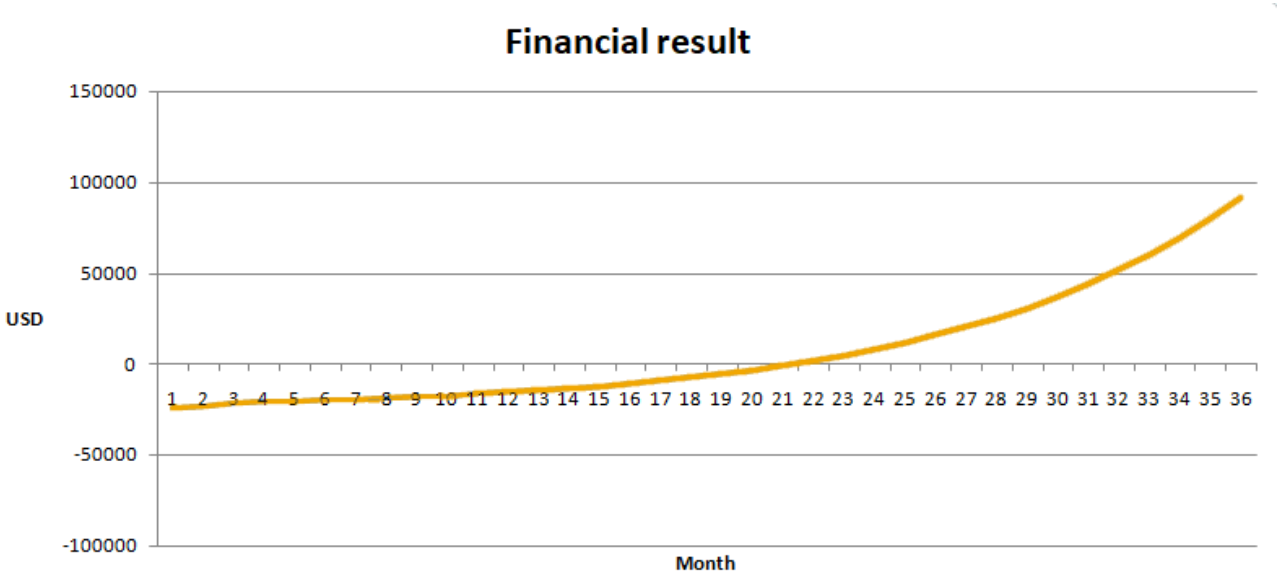
CHANNELS DISTRIBUTIONS - Friends, University, Social media e.g. Facebook, Google Play.

Our application can be used by people with basic knowledge on how to use a Smartphone applications. Apollo is a simple and easy to use after reading short user manual. We want to launch Apollo on the market by showing people possibilities of using our application.

4.2. Sales and Marketing

Demand on applications saving: money, time and food is continuously growing.In nowadays there is also demand on solutions based on Internet of Things – like beacons. Costs are variable and depends on sales volume. The estimated financial result is shown in the figure below.

Fig. 3. "Apollo" Financial result



We must ensure scalable architecture like servers and production. Employ the right number of employees depending on the sales results and sales forecasts. Our estimation of basic sales model shows that in the 19th month we could start earn on the Apollo product everything would go well, compensating the incurred costs for product implementation on the market and production.

The installation process is carried out by the user himself after download from Google Play. Using our market knowledge we want to advertise our product in the first

phase basics on online advertising. The second phase will include advertising local adds and television.

5. Presentation of project team

Our team consists of 3 students of University of Gdańsk, faculty of Management in Poland. We live in Tricity: Gdańsk, Gdynia and Sopot. Our common passion are new technologies. We follow the newest trends in the IT, and with passion would like to applicate them in new projects.

We are study Management Information Systems - Business Informatics.

Krzysztof Orłowski

From: Sopot, Poland

Role in on the project:

- Project manager
- Designer

Interest:

- web design
- development
- IT projects management

Adam Ostrowski

(Vice President of AIS SC of Gdansk)

From: Gdańsk, Poland

Role in on the project:

- Analyst
- Hardware

Interest:

- Computer electronics
- Home automation with Raspberry Pi
- "Do It Yourself"

Hubert Kołcz

(President of AIS SC of Gdansk)

From: Sopot, Poland

Role in on the project:

- Developer
- System designer

Interest:

- Traveling
- Computer programming
- Movies