Lab 1 - RocStar Product Description

Bartosz Maj
Old Dominion University

CS 411
Janet Brunelle
February 25, 2017
Version 2
Table of Contents

1 Introduction........................................................................................................................................3

2 Product Description.........................................................................................................................5
   2.1 Key Product Features and Capabilities.....................................................................................5
   2.2 Major Components..................................................................................................................6

3 Identification of Case Study............................................................................................................7

4 Product Prototype Description......................................................................................................8
   4.1 Prototype Architecture...........................................................................................................8
   4.2 Prototype Features and Capabilities.......................................................................................9
   4.3 Prototype Development Challenges......................................................................................11

Glossary............................................................................................................................................12

References..........................................................................................................................................13

Figures and Tables

Table 1: List of steps taken by the RSF from the moment of receiving a new referral form. .......3

Figure 1: Roc Solid Foundation’s current process flowchart.........................................................4

Figure 2: Major functional component diagram..........................................................................6

Figure 3: Prototype major functional component diagram............................................................9

Table 2: Real World Project Features vs Prototype Features......................................................10
Introduction

The Roc Solid Foundation (RSF) is an organization that strives to help children diagnosed with cancer. Their charitable work focuses on helping the patient and their families during that time. They provide relief in the form of bags filled with supplies that a family might need when unexpectedly forced to stay at a hospital for a prolonged time. The organization will also build playsets and remodel young patient’s rooms in order to bring some additional positive energy into their lives.

All this effort requires involvement of many people. The patients’ families have to be contacted, and the volunteers and supplies coordinated. Altogether the RSF has identified 19 steps that have to be taken from the moment a child is diagnosed with cancer to the completion of a project (see Table 1). These tasks are done manually and often with a use of outdated technology. That requires a lot of effort from everybody participating, and can become difficult.

<table>
<thead>
<tr>
<th></th>
<th>Application from Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Contact Family</td>
</tr>
<tr>
<td>3</td>
<td>Meet/Skype Family</td>
</tr>
<tr>
<td>4</td>
<td>Family Waiver</td>
</tr>
<tr>
<td>5</td>
<td>Child Photo</td>
</tr>
<tr>
<td>6</td>
<td>Family Interview Questions</td>
</tr>
<tr>
<td>7</td>
<td>Pre-Build Report</td>
</tr>
<tr>
<td>8</td>
<td>Send Sponsor Packet</td>
</tr>
<tr>
<td>9</td>
<td>Send Volunteer Packet</td>
</tr>
<tr>
<td>10</td>
<td>Sponsor Agreement</td>
</tr>
<tr>
<td>11</td>
<td>Food Sponsor Agreement</td>
</tr>
<tr>
<td>12</td>
<td>Project Info Report</td>
</tr>
<tr>
<td>13</td>
<td>Order Lowes Material</td>
</tr>
<tr>
<td>14</td>
<td>Order Porto John</td>
</tr>
<tr>
<td>15</td>
<td>Order Limo</td>
</tr>
<tr>
<td>16</td>
<td>Confirm Hotel</td>
</tr>
<tr>
<td>17</td>
<td>Confirm Transportation</td>
</tr>
<tr>
<td>18</td>
<td>Order Table/Chairs</td>
</tr>
<tr>
<td>19</td>
<td>Confirm with Family on Activity</td>
</tr>
</tbody>
</table>

Table 1: List of steps taken by the RSF from the moment of receiving a new referral form.
The RSF has identified a need for a software solution: a mobile application that would help improve communication and coordination (see Figure 1) between the foundation and other involved parties (patients’ families, volunteers, and hospital staff), and modernize the current workflows. The ubiquity of smartphones, tablets and personal computers, as well as reliable access to the Internet, allow for the application to be accessed by the majority of people in the United States.

Such a solution is RocStar, which will allow the users to easily communicate with each other, provide easy access to the pertinent information about patients, projects, and volunteers. The amount of effort required from the RSF staff will be decreased thanks to automatization of several workflows. That includes digital referral forms, which can be prepopulated with relevant data, decreasing the amount of time that is needed to complete them, as well as automatic notifications, allowing the users to quickly communicate with each other.

Figure 1: Roc Solid Foundation’s current process flowchart: This figure identifies the areas that can be improved by a software solution.
2 Product Description

RocStar is a cross-platform web application that is tailored to suit the needs of Roc Solid Foundation. Its main purpose is to facilitate the communication and coordination between the parties involved in RSF workflow. That includes hospital staff members, patients and their families, project managers, volunteers, and Roc Solid Foundation staff.

The application will allow for quick communication between its users, easy creation of forms and waivers required during the process, as well as tracking of all the current projects of the RSF. RocStar will also give the families access to pertinent materials gathered by the RSF, and an option to create a message board that can be shared and accessed by other family members and friends.

The application will be available on iOS and Android devices as well as through internet browsers. The tablets that are part of Roc Solid Foundation’s Ready Bag program will come with RocStar preinstalled on them.

Thanks to the features provided in the application, the users will be able to save time when performing tasks that are currently done manually. This will lower cost and allow the RSF to expand their reach to other geographical areas.

2.1 Key Product Features and Capabilities

The features of the application include creating and managing user accounts, sending referral forms using preloaded forms, sending and receiving notifications regarding projects, creating and editing project pages, assigning users to projects in different roles (project manager, volunteer, etc.), adding required supply lists, tracking project progress, and accessing family forum boards.
Additionally, the application will be able to communicate with NeonCrm, the customer relationship management system used by RSF.

2.2 Major Components

The application is developed using HTML5 technology, capable of running on any environment through a browser without the need for a prior installation. Additionally, iOS and Android wrappers allow for native implementations. This will allow the user to access the application on any mobile device that is run by one of the two operating systems as a discrete program, which will increase the accessibility of RocStar.

Figure 2: Major functional component diagram.

The features of the application (Figure 2) will be available to the users through a responsive interface. The UI will be divided into sections that will be accessible to different users based on
their role, with each registered user capable of editing their personal information, and the administrator being able to set and edit access privileges.

The backend server created using PHP and Apache HTTP Server technologies will facilitate the connection to the database, which in turn will be implemented in MySQL. Both elements will be hosted on a private server belonging to Roc Solid Foundation, or in the cloud through a reliable third party provider. The data will be synchronized with NeonCRM through the provided API.

3 Identification of Case Study

This software solution has been designed for the use of Roc Solid Foundation, which is currently its only recipient. Currently, there is little automation being used in the RSF workflow. The referral forms are completed manually and submitted via fax or email. There are not any centralized methods for the project managers and volunteers to communicate. All the important information has to be entered manually into the RSF’s CRM system. Every single one of these areas can be improved with the use of technology. The adoption of the proposed solution has a potential to improve efficiency of the foundation, reduce cost of operation, and facilitate future planned expansion to other geographical areas. Additionally, this solution will improve the online presence of the RSF.

The application will also improve the communication between the foundation and families, as well as coordination of volunteers for the upcoming projects.

With some minor changes, the complete application could be adapted to be used by other non-profit organizations.
4  Product Prototype Description

The development team will be guided by Agile development principles and procedure to make sure that the product meets all the necessary requirements.

The prototype will strongly resemble the final product with only minor differences between them. The prototype will include an additional user type: tester, and will not fully synchronize its database with NeonCRM to avoid data corruption.

The application will grant its users access to different sections based on their security level. There will be different areas available to hospital staff, family, volunteers, and the RSF staff. During the prototype phase, all the information used in testing and demonstrations will be test data, created specifically to validate specific aspects of the product. However, due to the sensitive nature of the information that will be stored in the final product, necessary security features will be implemented to protected the test data.

The development team will establish and maintain close communication with Roc Solid Foundation, which will result in feedback that can be used to control the flow of the creation process.

4.1 Prototype Architecture

The prototype architecture will closely resemble that of the final product, and can be seen in Figure 3. The application will be hosted on a virtual machine provided by Old Dominion University’s Computer Science Department. It will be built using Apache2 web server, and the data will be stored in a MySQL database. Linux will be used as the operating system.

The backend will be created using PHP version 7.0, and will be used as a bridge between the database, NeonCRM, and the user interface. The latter will be constructed using HTML5, and an additional wrapper will be built using Swift and Java programming language to provide native
adaptation for iOS and Android operating systems respectively. Push notifications will be provided as a major feature to improve communication between the RSF and other users.

4.2 Prototype Features and Capabilities

The prototype will demonstrate all of the capabilities of the final product. It will allow generation and manual creation of push notifications, as well as sending and receiving them. RSF staff members and project managers will be able to create and edit project pages along with associated supply lists, and add or remove volunteers. The hospital staff will be able to send referral forms that will be pre-populated with user data. The volunteers will be able to view project pages and send requests to be added to them. Additionally, all the stored information will have the option to be synchronized with NeonCRM. The component diagram is represented in Figure 3.

![Prototype major functional component diagram](image)

Figure 3: Prototype major functional component diagram.
The prototype will contain fake data, and will not allow for creation of family pages or message boards.

A special user type will exist in the prototype version of the application: Tester. Testers will be able to simulate any other type of application users, so that the desired behavior of every component can be inspected and evaluated. The list of all the features can be seen in Table 2.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Real World Project</th>
<th>Prototype</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Creation and Management</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Referral Forms</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Integration with NeonCRM</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Volunteer Checklists</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>User Account Creation and Administration</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Push Notifications</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Family Pages</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Tester User</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 2: Real World Project Features vs Prototype Features

The goal of the prototype is to provide validation for the designed product and allow for feedback from future users, mainly Roc Solid Foundation’s staff. This will help to mitigate some of the identified risks, i.e. the users will be able to familiarize themselves with the product, the development team will be able to ensure that proper security features have been implemented, and that the application can communicate with NeonCRM in a manner that is satisfying to the RSF.
4.3 Prototype Development Challenges

The most important non-technical part of the development process will be establishing effective communication between the team working on the application and the users. Correct bidirectional communication will greatly enhance the value of the complete prototype. Failure to establish such communication might result in a product that will not have any chance to be successfully adopted.

On the technical side, the most unpredictable factor will be NeonCRM integration. The provided API might not suit all the needs of RocStar, and in that case, the development team will not be able to proceed with the implementation without establishing cooperation with Z2 Systems (creators of NeonCRM).
Glossary

**Apache2 Web Server**: Software for hosting the web server

**API (Application Programming Interface)**: A set of rules and specifications that software programs follow to communicate with each other.

**CRM (Customer Relationship Management) software**: This type of software consolidates customer information and documents into a single database so business users can more easily access and manage it.

**CSS (Cascading Style Sheets)**: Language for formatting content displayed on a web page

**HIPPA (Health Insurance and Portability Act of 1996)**: United States Act that provides data security for medical information

**HTML (HyperText Markup Language)**: Language for web development

**MySQL**: An open-source relational database management system

**NeonCRM**: CRM software used by Roc Solid Foundation

**PHP**: Server scripting language

**RSF**: Roc Solid Foundation
References
