CS 411W Lab II
Prototype Product Specification
For
RocStar

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Version I
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1. Introduction

There may be no words more disheartening to hear than “your child has cancer”. Unfortunately, there are many families who have had to hear these words. Over 15,700 children are diagnosed with cancer each year (Roc Solid Foundation Presentation, 2016). It is impossible for most people to fully understand such a situation. It catches these families by surprise, and there really is nothing that can prepare someone for that kind of diagnosis. These families are normally at the hospital just getting some sort of routine check-up, or perhaps their child feels a little under the weather. Then, without warning, they are figuratively smacked upside the head with life-altering news. The sad truth is that the child diagnosed and his or her family are blindsided and left to face this brutal disease alone and ill-equipped. Fortunately, there are organizations out there who want to help. These organizations want to be able to offer support and help guide the families through these tough times the best they can. One of these organizations is the Roc Solid Foundation.

The Roc Solid Foundation (RSF), is a Virginia-based, non-profit organization with the intent of helping children diagnosed with cancer and their families. Their aim is to build hope for children fighting the disease, allowing them to focus on the joys of just being a kid. But, at the same time, they want to relieve some of the stress involved for the family as well. They are able to do this by offering initiatives such as their “Solid Support” program (Roc Solid Ready Support Program) which provides families with “Ready Bags”. These bags are filled with things from toiletries to a tablet computer, and even change for the vending machine. Roc Solid wants to provide anything and everything they can in order to make the initial diagnosis and following
days as comfortable as possible. RSF also offers a “Play it Forward” (Play it Forward, 2015) initiative. Roc Solid will build a backyard playset for the child, or if a backyard is not available, Roc Solid will remodel the child’s room to his or her requests. But, Roc Solid also offers support by helping facilitate communications with other families going through the same hardships, doctors and other hospital staff, and RSF staff. Roc Solid will do anything they can to help these families. This is where the true problem lies. Roc Solid relies heavily on outdated forms of communication and coordination. Presently, they use only emails, fax, and phone calls to organize their efforts. They currently have no notification and reminding capabilities. In today’s world, mobile applications are king. If a company or organization does not have their own mobile app, they face the possibility of becoming obsolete. Roc Solid is no different in this aspect. They would like to help as many children and families as possible, but without an improvement in their current system, this simply is not possible. Automation is the key, allowing for their process to become more efficient and less complicated, and this is where the RocStar application comes into play.

1.1 Purpose

The RocStar application, currently under development, will aid the Roc Solid Foundation by automating much of the tedious manual workflow that the foundation presently uses. This automation will RSF to focus less on the overall coordination and communication involved, and focus more on their mission of helping children with cancer. Currently, Roc Solid’s process involves 19 steps from first contact with the family, all the way to project completion. Figure 1 lists those 19 steps:
Table 1: The 19 Steps of Roc Solid

<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 Johns</td>
</tr>
<tr>
<td>15</td>
<td>Order Limos</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 Tables/Chairs</td>
</tr>
<tr>
<td>19</td>
<td>Confirm with Family on Activity</td>
</tr>
</tbody>
</table>

Each step is crucial in meeting the overall objective. Needless to say, steps cannot simply be passed over. Every step is important in reaching their goal. But, by automating most of the process, RocStar will be able to more effectively communicate and coordinate their efforts. Figure 2 illustrates the current process flow of the Roc Solid Foundation. The areas shaded in pink are where the RocStar application will benefit RSF. The RocStar application will be pre-installed in all Ready Bag tablets, so families will be able to connect to RSF as soon as they receive their Ready Bags. If they happen to be at a hospital which does not participate in the Ready Bag Program, the app will be web-based, but also free to download from Apple’s App Store, or Google Play for Android devices. Not only will it allow instant contact with the Roc Solid Foundation, it will also integrate with RSF’s customer relationship management system, NeonCRM. This means all important documents and data will be kept in one central location, allowing for a more easy-to-use and secure system.
All users of the application will start with default permissions and privileges. This offers users the ability to donate to Roc Solid, shop in Roc Solid’s online store, and create an account or login. Once an account is created, permissions will be granted by RSF staff based on what role they will play in the foundation. RSF staff will have administrator privileges, and will have access to the entire system. This will allow them to effectively control the access of all other users. They will also be able to send push notifications to all application users, while also creating and updating and projects for RSF. Hospital staff will have access to referral forms, in order to notify Roc Solid that they have a new patient at one of their participating hospitals. An order form to Ready Bags will also be provided. The patients themselves, along with their family, will have access to the family sections of the application, which will provide much
needed support and allow them to chronicle their progress. Volunteers will be able to view a calendar of upcoming projects and events in their area and any necessary information that comes along with those events. The team leaders will be able to coordinate with volunteers, along with managing aspects of the projects.

The RocStar application will not diagnose any medical conditions, but it will provide all functionality discussed above. However, the prototype will not be fully integrated with NeonCRM. The Family Page also will only be available in the release version of the application. All data will be kept private, and never be shared with any third-party. Once any waivers are signed by the patient’s family, only pertinent individuals within the RSF or associated hospitals will be able to view any personal information.

1.2 Scope

RocStar will be a web-based application, but by using wrappers, will be available for all iOS and Android devices. It is being produced solely to aid the Roc Solid Foundation in their philanthropic efforts regarding pediatric cancer patients. In the future, the application could be modified to help other non-profits, but currently it is being developed to assist the Roc Solid Foundation based on their specific business and workflow requirements. The main objective of the RocStar application is to facilitate communication and coordination amongst Roc Solid staff members, hospitals, and volunteers. It will streamline the process flow of RSF and allow for better organization, integration and the promotion of overall productivity. The hope is that this will allow RSF to increase their reach, and allow them to have a positive impact on even more children in the future.
1.3 Definitions, Acronyms, and Abbreviations

**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

**Firebase**: Modular web-based tools designed for use in building software applications

**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
1.4 References


1.5 Overview

The RocStar product specification shall provide all of the hardware and software configurations, capabilities, and features of the RocStar application prototype. The information provided in the remainder of this specification shall include a detailed description of the hardware and software underlying the RocStar prototype, the main components of the prototype, and all variables that will be used to control, manage, or establish the components.

2. General Description

The RocStar application prototype will undoubtedly have some minor differences between it and the real-world application. The prototype will demonstrate all functionality presented, except it will not use any real, personal data. The prototype will authenticate against a small number of users stored in the prototype’s MySQL database, as opposed to the large amounts of users found in the real Roc Solid database. All user permissions will be simulated, along with the creation and editing of user profiles. All events calendars, coupons pages, and messaging forums will also be simulated. However, the overall functionality of the real-world release shall be demonstrated in the RocStar application prototype.
<table>
<thead>
<tr>
<th>Feature</th>
<th>Real-World Product</th>
<th>Prototype</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notification System</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>NeonCRM Integration</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Create User Account</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Set User Permissions</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Fillable Referral Form</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Family Page</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Discussion Board</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Tester User Role</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 2. Real-world product vs. prototype

2.1 Prototype Architecture Description

In order to function properly, the RocStar user will need a device that can connect to the Internet. The application will be made using HTML5 and be web-based, but by using wrappers, will be accessible by any device using Android or iOS. This will not only provide ease of use, but also make the application more accessible to any user. There is also a requirement of a server created using PHP and Apache HTTP connected to a database using MySQL. The “cloud” will be used in order to store the application itself and the database, which will hold the information of all the volunteers, hospital staff, families, and volunteers. The cloud will also be used in accessing and updating the database. This ensures that all data will be secure and up to date. The user will use the application to interact with the cloud, which accesses needed information that has been populated from the database. The prototype
will run on a virtual machine installed on a Linux server provided by the ODU Computer Science Department.

Figure 2. Roc Solid current process flow

When the application is first opened, the user will notice a welcome screen. From this screen, they will be able to navigate to the Roc Solid online store or donate to the Roc Solid Foundation. They will also have the option to create an account, or login if an account has not been created. Once an account has been created and approved by the RSF staff administrator, they will be granted rights based on the user role that they have been given. All users who have successfully logged in will have access to a message inbox, which will allow the users to
read and save received messages, as well as create messages of their own. They will also have access to their own personal user profile. They will be able to create and edit their profile as they see fit. All user profiles will be saved within the database.

2.2 Prototype Functional Description

What RocStar offers the user depends on the role of the user. Each role will have different levels of access. Anyone with the app will be able to access Roc Solid’s online store, donate money to Roc Solid’s efforts, or create an account and login. After creating an account, the user falls into one of five categories. They will either be classified as patient/family member, hospital staff, Roc Solid staff, team leader, or volunteer. Patients and family members will be able to access the family forum where families can connect with others dealing with the same issue, personalized family page, and an entertainment page that
offers videos and games to help pass time. It is all an effort to make their hospital stay a little
more pleasant. It will also offer a direct line of communication between the families and both
hospital and Roc Solid staff.

![Diagram of common access site map]

*Figure 4. Common access site map*

After creating an account, the user falls into one of five categories. They will either be
classified as patient/family member, hospital staff, Roc Solid staff, team leader, or volunteer.
Patients and family members will be able to access the family forum where families can
connect with others dealing with the same issue, personalized family page, and an
entertainment page that offers videos and games to help pass time. It is all an effort to make
their hospital stay a little more pleasant. It will also offer a direct line of communication
between the families and both hospital and Roc Solid staff. If logged in as a hospital staff
member, the user may access the user info page, manage inventory, and request and submit
preloaded referral forms. It will also help connect and communicate with families and Roc Solid.

Figure 5. Hospital Staff Site Map

Roc Solid staff members will be able to stay updated on all ongoing projects with a projects page, plan and coordinate events with an events calendar, view volunteer and family profiles, download any pertinent documents that they may need, and communicate with all parties involved in any one of their projects. Volunteers will be able to access information of ongoing and future projects, complete their volunteer waiver form, obtain a volunteer manual, and view both project and user profiles. It will also offer a better form of communication with all other involved parties. Figure 4 illustrates the RSF staff access, while figure 5 shows the volunteers’ access.
Figure 6. RSF staff site map

Figure 7. Volunteer site map
2.3 External Interfaces

The RocStar application will require either an iOS device running iOS 8.0 or above or an Android device running version 5.0 or above. An alternative would be an Internet browser that adheres to W3C standards.

2.3.1 Hardware Interfaces

An Old Dominion University Computer Science Department Virtual Machine will host the RocStar application. An Apache web server and MySQL database will connect with the RocStar application and integrate with NeonCRM by using PHP and the Laravel framework.

2.3.2 Software Interfaces

All data will be stored in a MySQL database. HTML, CSS, and PHP will be used to create the frontend, with Java being used for the Android development, and Swift for the iOS development. The backend will be created using the Laravel framework consisting of PHP code.