Lab 1 – RocStar Product Description

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Table of Contents

1 Introduction........................................................................................................................................... 3
2 RocStar Product Description.................................................................................................................. 6
   2.1 Product Features and Capabilities................................................................................................. 6
   2.2 Major Functional Components (Hardware / Software).................................................................. 9
3 Identification of Case Study................................................................................................................ 11
4. RocStar Product Prototype Description.......................................................................................... 12
   4.1 Prototype Architecture (Hardware/Software)................................................................................. 13
   4.2 Prototype Features and Capabilities............................................................................................. 15
   4.3 Prototype Development Challenges.............................................................................................. 16
5 Glossary................................................................................................................................................. 17
6 References............................................................................................................................................... 18

List of Figures

Figure 1. Current manual process of Roc Solid’s support to a family....................................................... 4
Figure 2. Current process model................................................................................................................. 5
Figure 3. Major functional component diagram....................................................................................... 10
Figure 4. Prototype major functional component diagram......................................................................... 14

List of Tables

Table 1. Real world product vs. prototype............................................................................................... 15
Lab 1 – RocStar Product Description

1. Introduction

In an increasingly connected world the need for fast, and continuous, communication and coordination is becoming a must if you are going to be successful. Current processes are becoming more automated as society progresses to meet this demand. A lot of what humans used to do is now being done by machines, e.g. food ordering, banking, and customer support. Processes have been hastened due to this automation, but there is many times still a need for human interaction with the process, or the process itself just seeks to make the human interaction easier in a complicated endeavor.

The benefits of automation do not only apply to businesses, but also to philanthropic efforts. One such philanthropic effort that could benefit from automation is the Roc Solid Foundation. The Roc Solid Foundation is an organization that assists families that have a child with cancer. The support they offer is multi-faceted. Roc Solid provides families with Ready Bags through their “Solid Support” program (Roc Solid Ready Support Program). These bags are filled with essentials for the family’s stay at the hospital upon the doctor’s diagnosis of their child’s cancer. Through their “Play It Forward” program, Roc Solid also builds custom backyard play sets for pediatric cancer patients when they return home. If the child does not have a backyard they will do a custom room remodel for the child. These charitable actions are very important to the welfare and morale of these children and deserve to be put in the forefront of an effort to make the process by which Roc Solid operates a faster and more efficient one.
Every year over 15,700 children between ranging in age between birth and 19 years old are diagnosed with cancer in the US each year, and the average age of diagnosis is just six years old (Roc Solid Foundation Presentation, 2016). Anything that can be done to ease the process for these children is worth the effort.

Improving upon Roc Solid’s amazing charity is the goal of the RocStar application. By automating some of Roc Solid’s communication and coordination flows; RocStar seeks to be the speed and reliability that the Roc Solid Foundation needs. The current process by which Roc Solid operates includes nineteen steps from first contact with the family until project completion as illustrated in Figure 1.

<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>

*Figure 1. Current manual process of Roc Solid’s support to a family. This figure illustrates a process which could readily be automated for better communication and coordination.*
Another aspect of Roc Solid’s current process flow, as illustrated in Figure 2, is their manual entry of vital information into their NeonCRM database, as well as the manual processes to collect said information for the database. As you can also see in the figure, Roc Solid’s volunteer efforts for “Play It Forward” projects are in need of communication and coordination improvements to improve overall productivity. With RocStar some of these manual processes can be automated. This automation will allow the Roc Solid Foundation to better focus on their mission of helping these families in need. By automating the process in the very beginning, when the hospital is informing Roc Solid that they have a family in need of their services and a Ready Bag is given, until the very end when a project is completed for one of these families; RocStar seeks to improve the lives of not only Roc Solid employees, but also the hospital worker, project volunteers, families, and most importantly the pediatric cancer patients that use Roc Solid’s services.

*Figure 2. Current process flow. This figure illustrates the areas in which automation could be applied to the current process flow to facilitate coordination and communication.*
2. RocStar Product Description

RocStar is web-based application that utilizes wrappers to bring it to the mobile arena. RocStar will be available to both iOS and Android users through the use of said wrappers. The main goal of RocStar is to bolster the coordination and communication efforts of the Roc Solid Foundation. Through automation of some of Roc Solid’s processes the efforts of the staff, hospitals, volunteers, and families will be made simpler and more efficient. The RocStar application will allow users to do things like: digitally fill, sign, and send forms, communicate with the Roc Solid community, assign tasks for projects, and much more. RocStar supports the objective of bringing Roc Solid’s philanthropic effort to bear fully on their mission and allows them to spend less time in the tedium of paperwork and logistics of their services.

2.1 Product Features and Capabilities

RocStar will incorporate different levels of user interaction depending on the role you perform within Roc Solid’s efforts. Some interaction with the application will be universal such as the ability to donate directly to the Roc Solid Foundation, access the online store, and be able to edit your profile information. Other functionality will be delegated according to user role. Users designated as volunteers will be able to access a calendar of events to see which projects they would like to attend. Volunteers would have access to a communication board for enabling discussion between volunteers, and also from volunteers to the project leads they are working with. Volunteers will also have the ability to view project execution details, such as play set build instructions.
Users designated as Roc Solid Foundation Staff members will have access to applications, forms, and requests from all users. Roc Solid Staff users will have the unique ability to transfer data from the application to their NeonCRM database that holds all of Roc Solid’s records. Some of the data that is transferred will include hospital applications for Ready Bags and their pertinent information for shipping Ready Bags to them, current customer information, and records of personnel assisting on projects. Staff users will require access to financial reports for past, present, and future projects to maintain accurate records. Another function imparted by RocStar onto Roc Solid Staff members will be to send individual and group notifications to ensure proper coordination and communication as projects are assigned and actioned. Roc Solid Staff will be able to communicate with the pediatric cancer patient’s family directly and obtain through the RocStar application an electronically fillable waiver from the family allowing Roc Solid to proceed with the “Play It Forward” section of their efforts. The waiver gives Roc Solid the ability to help the family and not be hindered by HIPAA regulations since the family gave them direct permission to help them with their child’s situation. The electronic submission of this documentation is important in getting the project initiated as quickly as possible.

A very important user of the RocStar application will be the family members of the pediatric cancer patient. The family member would be able to access the family page set up by the Roc Solid staff. On the family page the user would be able to communicate with other family members signed up through RocStar. Tips, advice, and inspiration for the family will also be provided to the family via the family page. RocStar will ensure that the application
incorporates a child-friendly mode so the patients themselves can have ease of use when interfacing with the application.

The Team Lead user will have access to all of the projects they are assigned to as well as communication and oversight with all of the volunteers on their project, as well as access to information on other possible volunteers that could help on their project. It is very important that leaders have the ability to effectively communicate and coordinate not only with their volunteers, but also with their fellow team leaders, and Roc Solid staff members. Team Leaders will also see functionality incorporated so that financial reports on projects can be accomplished for accountability and resourcing purposes.

Hospital staff users will be given access to ordering Ready Bags. This is currently a non-electronic process that has to be faxed or sent via e-mail to the Roc Solid Foundation. Through the RocStar application this form will be automated and Roc Solid will be able to respond to requests for Ready Bags much more efficiently. This efficiency increase will help to ensure that a Ready Bag is available when a new patient is in need of the service. Hospital Staff also will have access to an electronic referral form. This form is also currently transmitted via fax or e-mail services which is not as efficient as an electronically filled and submitted form. This referral form is Roc Solid’s first direct line of contact with the pediatric cancer patient’s family. The RocStar application will make this communication more convenient, and it will speed the process of getting those families that want to partake in Roc Solid’s services the support they desperately need.
Tester users will have the ability to take on the role of each user and ensure that the RocStar application is functioning properly. Testers will have access to the notification systems to observe the system for correct function. The tester user will be afforded the ability to simulate multiple user types simultaneously to ensure proper communication and coordination is taking place between the users.

All of these users will need the support of a complete and efficient electronic application to fulfill their roles in the pediatric cancer patient’s life. From the hospital staff all the way to the volunteers on a child’s project, if proper coordination and communication are not established at every step of the process then a breakdown in services will occur, and given the customer that would be a tragedy. To advert said tragedy, RocStar will implement effective and timely coordination and communication of efforts to all aspects of the child’s support process.

2.2 Major Functional Components (Hardware/Software)

There will be three hardware components integrating with the RocStar application. The RocStar application itself will need to be accessed on a device capable of web-access. If the device is mobile it would be limited to one that operated on either the iOS or Android platforms. The RocStar application can also be accessed via a desktop or laptop with internet access. RocStar will store information on a server, and that information will need to be synced with Roc Solid’s NeonCRM.

There will be five software components integrating with the RocStar application. MySQL, PHP, and Apache will be used to construct the database and server applications. PHP will be incorporated user authentication, user and project management, and testing. Firebase
will be used for implementation of the notification systems of the RocStar application.

Information access to the database, as well as access to the RocStar application itself will be implemented through the Cloud. By using a Cloud based information environment, RocStar can ensure that it is kept current also has the added benefit of not having information stored on user devices but in the cloud. The benefits of RocStar using the Cloud is that it offers more security, document control, collaborative effort, and updates dynamically. Figure 3 illustrates the major functional components of the RocStar application and how they work together to provide a comprehensive user experience.

*Figure 3. Major Functional Component Diagram. Illustrates all of the major hardware and software components needed for the RocStar application’s implementation.*
3. Identification of Case Study

The Roc Solid Foundation is currently using a manual process to communicate and coordinate with many aspects of their workflow. The hospitals that Roc Solid works with fill out paper requests for Ready Bags and also paper referral forms for families of pediatric cancer patients. These records are then submitted to Roc Solid either via e-mail or fax. After Roc Solid receives these correspondence they have to scan it into their systems and input it into their NeonCRM database. This process is a slow and inefficient one that could be greatly improved upon by the implementation of RocStar with electronic records and their submissions. Through RocStar these documents could be uploaded directly to Roc Solid for review and acceptance enabling a much quicker and accurate response to hospital requests.

All communications and coordination of “Play It Forward” project efforts are done via phone and/or e-mail. This form of communication can hinder the timely passing of information. If a person on the volunteer team does not check their e-mail they may miss an opportunity to help on a project. If a Team Leader cannot find sufficient volunteers for a project then progress is delayed. If a Roc Solid staff member cannot effectively communicate the need for a new project, or if the project needs to change due to the needs of a patient as they undergo treatment, then the project could be halted and time and money would be lost. RocStar will enable this communication to happen effectively with a notification system, calendar of events, communication boards, and volunteer assignment, scheduling, and coordination abilities.

Roc Solid currently does not have a place for the families they support to meet with each other and gain the support of their community. RocStar will develop a “Family Page” that
the will enable these families to communicate with their loved ones, gain inspiration, share
their struggles, and invite more of their family to participate in their lives. This is a very
important aspect of the RocStar application as it gives hope to the families that are going
through this difficult time as well as facilitates their development of a needed support network.

4. RocStar Prototype Product Description

The RocStar prototype will have most of the functionality of the real-world application. The RocStar prototype will have a functional database enabling integration with Roc Solid’s NeonCRM. RocStar’s prototype will integrate user control levels to ensure that permissions are given to only the personnel that should have access to a specified level of functionality. RocStar will have an active notification system run through Firebase to alert users of new and upcoming projects, calendar events, and scheduling changes.

All ranges of user access will be simulated, i.e. Roc Solid Staff, Team Leader, Family, and Hospital users. Testing to ensure that only the correct permissions for each level are granted will be performed. Access to the various levels of functionality will be simulated on a small scale as compared to the many users that will be incorporated in a full-release version, but all levels of access will be exercised in the prototype and functionality demonstrated.

The user group “Tester” will be incorporated into the RocStar prototype but will not be included in the final real-world application. This user role is simply to ensure that the system is properly functioning in the development phase of RocStar’s production. The tester user role will be instrumental in displaying the functionality of the RocStar application in the prototype development phase, but its usefulness would not transfer to the final product.
4.1 Prototype Architecture (Hardware/Software)

The hardware for the RocStar prototype will be hosted on an Old Dominion Virtual Machine. It will incorporate Old Dominion’s Apache2 web server, and a MySQL database server. These will allow storage of data and integration with Roc Solid’s NeonCRM.

Software for the RocStar prototype will consist of Linux, MySQL, Apache, PHP, Firebase, Swift, and Java. Linux will be used for interfacing with Old Dominion University’s Virtual Machine. MySQL will be utilized for the database services of the web server. Apache will allow RocStar to store information on the web server. PHP will assist in database development, user authentication, user and project management, NeonCRM integration, and testing of the prototype. Firebase will be used for the notification system of the RocStar application prototype. Swift is used to create the wrapper for RocStar to run on iOS systems, and Java will be employed to create the wrapper for Android users of RocStar. Figure 4 illustrates the major functional components as they will exist during the prototype phase of RocStar’s development.
Figure 4. Prototype major functional component diagram. This illustrates the major functional components as they will exist during prototype development.
4.2 Prototype features and Capabilities

The RocStar prototype will closely mirror a lot of the real-world implementation. The prototype will allow users to create and manage a personal user profile. These profiles will be filled with generic user datum for functionality display purposes. RocStar’s prototype will include the functionality of separate levels of user access to ensure proper control of the application’s capabilities. The application will incorporate a notification system to inform Roc Solid personnel and volunteers of various events. It will allow the Roc Solid staff to schedule “Play It Forward” events, and Team Leaders to access and implement those events. A functional fillable electronic referral form will be available to the hospital staff user. The capability of the RocStar application to interface with Roc Solid’s NeonCRM will also be included in the prototype release. Table 1 illustrates the prototype functionality as compared to the final real-world release of the RocStar application.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Real-World Product</th>
<th>Prototype</th>
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<tbody>
<tr>
<td>Notification System</td>
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<td>Yes</td>
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<tr>
<td>NeonCRM Integration</td>
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<td>Yes</td>
</tr>
<tr>
<td>Create a User Account</td>
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<td>Yes</td>
</tr>
<tr>
<td>Set User Account Permissions</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Fillable Hospital 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 Boards</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

*Table 1. Real-world product vs. prototype*
4.3 Prototype Development Challenges

A large challenge will be accomplishing complete prototype functionality within the window of one semester. The balancing of what can be accomplished, in the limited timeframe, to produce a functional prototype will be a major concern. The integration of NeonCRM with the RocStar application will definitely be a challenge. NeonCRM is a rather large application with an extensive API. Figuring out how to best employ the capabilities of NeonCRM with our prototype will take some significant effort and time.

A general challenge is expanding the knowledge base of the team members as far as implementation of secondary services to the prototype is concerned. At Old Dominion University classes in PHP, HTML, and MySQL are not covered during the course of a regular Computer Science degree program. The learning curve of incorporating these programs into the working prototype will be a definite challenge for at least some of the team.
Glossary

Apache2 Web Server – Software for hosting the web server

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 (Hyper Text Markup Language) – Language for web development

MySQL – An open-source relational database management system

PHP – Server scripting language

RSF – Roc Solid Foundation
References

