A REPORT

ON

FIRST MEDICAL RESPONDERS WEBSITE

BY

Name Of The Students	ID No.
Anubhav Gupta	2013B3A3672P
Gyanendra Mishra	2013A7PS126P
Manit Gupta	2013A7PS120P
Shubham Agrawal	2013A7PS190P

AT

(Indian Red Cross Society Blood Bank, New Delhi)

A Practice School-I Station of

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI (July, 2015)

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Prepared in partial fulfilment of the Practice School-I Course

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Title: First Medical Responders Website

ID No./Names/Discipline(s)/of the student(s):

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Key Words: FMR (First Medical Responders), Disaster Management, Website

Project Areas: Web Development, PHP, MySQL, HTML, CSS, JavaScript

Abstract: The National HQ is tasked with gathering data from over 700 branches across 35 states of thousands of **First Medical Responders (FMRs).** First Medical Responders are trained volunteers with the capacity to respond to emergency situations. This task is a cumbersome one that requires a lot of manual labour, paperwork and time. Further even if data is compiled, there is no quick way to contact the first medical

responders and verifying the integrity of existing data. Also, paper based data cannot

be edited or searched efficiently. **This is the problem** that we have addressed through

our project. Our project, an online Resource Management Portal (RMS), provides a

quick and efficient way to deploy human capital (first medical responders) in the time

of need and maintain nationwide records of data. The website provides different

levels of access to Nation, State or District Level Users based on their clearance levels

and secures the data using User Login (Session-based) authentication system. It will

help the Red Cross staff from all over the country to access the required information

through 24X7 on both Computer and Mobile Platforms.

Signature(s) of Student(s)

Signature(s) of PS Faculty

Date:

Date:

(iv)

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1. Introduction

1.1. WHAT IS THE INDIAN RED CROSS SOCIETY?

The Indian Red Cross Society is a voluntary humanitarian organization having a network of over 700 branches across 35 States and Union Territories, providing relief in times of disasters/emergencies and promoting health & care of the vulnerable people and communities.

It is a leading member of the largest independent humanitarian organization in the world, the International Red Cross and Red Crescent Movement.

1.2. MISSION

The mission of the Indian Red Cross is to inspire, encourage and initiate at all times all forms of humanitarian activities so that human sufferings can be minimized and even prevented and this contribute to create climate for peace

1.3. ORIGIN

During the First World War in 1914, India had no organization for relief services to the affected soldiers, except a branch of the St. John Ambulance Association and by a Joint Committee of the British Red Cross. Later, a branch of the same Committee was started by Nurse Vrushali Paunikar to undertake the much needed relief services in

collaboration with the St. John Ambulance Association in aid of the soldiers as well as civilian sufferers of the horrors of that Great War. A bill to constitute the Indian Red Cross Society, Independent of the British Red Cross, was introduced in the Indian Legislative Council on March 3, 1920 by Sir Claude Hill, member of the Viceroy's Executive Council who was also Chairman of the Joint War Committee in India. The Bill was passed on March 17, 1920, and became Act XV of 1920 with the assent of the Governor General on the March 20, 1920.

On June 7, 1920, fifty members were formally nominated to constitute the Indian Red Cross Society and the first Managing Body was elected from among them with Sir William Malcolm Hailey's Chairman.

Indian Red Cross Society has a partnership with National Red Cross and Red Crescent Societies, St. John Ambulance, International Federation of Red Cross and Red Crescent Movement (IFRC), International Committee of the Red Cross (ICRC), Multinational firms. It also coordinates with Indian Government and other agencies (UNDP, WHO etc.)

1.4. EMBLEM

A Red Cross on a white background is the Emblem of Red Cross, recognized in 1864 as the distinctive sign for medical relief teams on the battlefield.

In the Russo-Turkish war, the Ottoman Empire used a Red Crescent in place of the Red Cross. Egypt, too, opted for the Red Crescent, while Persia chose a Red Lion on a white

background. These symbols were written and accepted into the 1929 Geneva Conventions. The IRCS adopted RED CROSS as its emblem.

The National Society makes use of the emblem as an indicative device in peacetime and during armed conflicts within the limits stipulated in national legislation, the regulations and its statutes only for activities consistent with the principles set out by International Federation of the Red Cross and Red Crescent.

During the General Assembly and the council of Delegates in November 2005 at Geneva, Red Crystal has been adopted as another emblem for the Red Cross Red Crescent movement.

1.5. ORGANIZATION

Indian Red Cross Society (IRCS) was established in 1920 under the Indian Red Cross Society Act and incorporated under Parliament Act XV of 1920. The act was last amended in 1992 and of rules were formed in 1994.

His Excellency the President of India is the President and Honourable Union Health

Minister is the Chairman of the Society

The Secretary General is the Chief Executive of the Society.

1.6. SEVEN FUNDAMENTAL PRINCIPLES

1. Humanity: The International Red Cross and Red Crescent Movement, born of a desire to bring assistance without discrimination to the wounded on the battlefield,

endeavours, in its international and national capacity, to prevent and alleviate human suffering wherever it may be found. Its purpose is to protect life and health and to ensure respect for the human being. It promotes mutual understanding, friendship, cooperation and lasting peace amongst all people.

- **2. Impartiality**: It makes no discrimination as to nationally, race, rich and poor, religious beliefs, sex, class or political opinions. IRCS offers its services equally, for those who are in need. It endeavours to relieve the suffering of individuals, being solely by their needs, and to give priority to the most urgent cases of distress.
- **3. Neutrality**: In order to enjoy the confidence of all, the Movement may not take sides in hostilities or engage in controversies of a political, racial, religious or ideological nature.
- **4. Independence**: The Movement is independent. The National Societies, while auxiliaries in the humanitarian services of their governments and subject to the laws of their respective countries, must always maintain their autonomy so that they may be able at all times to act in accordance with the principles of the Movement.
- **5. Voluntary service**: It is voluntary relief movement not prompted in any manner by desire for gain.
- **6. Unity**: There can be only one Red Cross or Red Crescent in any one country. It must be open to all. It must carry on its humanitarian work throughout its territory.
- **7. Universality**: The International Red Cross and Red Crescent Movement, in which all societies have equal status and share equal responsibilities and duties in helping each other, is worldwide.

2. ORIENTATION

On our first day at the Indian Red Cross Blood Bank we were introduced to the various departments that are within the Indian Red Cross Society through a guided tour. Indian Red Cross-'s programs at National Headquarters are grouped into four main core areas: Blood Bank; Disaster response; Disaster preparedness; and Promotion of Health Care in the community.

Blood Bank: The blood bank is one of the major areas of work at the National Headquarters. A guided tour was given to us by Dr. Suman, who is in-charge of The Blood bank facility. Blood is first collected by the voluntary donor. It is then tested for blood Group, malaria, jaundice, syphilis and AIDS. Finally, it is stored in the refrigeration units. Main consumers of Red Cross blood are thalassemic patients, which constitute 75% of the recipients.

Disaster Management: This is the most important task/department of Red Cross National Headquarters, especially during Natural calamity within India and neighbouring states. All relief efforts by the Indian Red Cross are coordinated by the employees of this department. Relief package Distribution, First Medical Responders, and Logistic support etc. come under the purview of this Department.

Disaster Training and Preparedness: Red Cross is also engaged in organizing disaster preparedness/training and awareness campaigns. Such activities were first initiated in 1999. Apart from this, Indian Red Cross also operates a Vocational training Centre.

3. FIRST MEDICAL RESPONDERS

In past years, there have been many initiatives across India for the development and training of volunteers. Indian Red Cross Society has identified a minimum set of skills which its volunteers must possess in order as a first responder to a variety of emergencies, leading to the development of the concept of first medical responders (FMR). The Indian Red Cross Society, with the support of state authorities and its international partners (ICRC and IFRC), aims to develop a cadre of certified first medical responders at district level through a series of training programmes, enhancing the capacity of communities to respond to emergency situations. These volunteers and staff will be trained and equipped to address needs of their local communities, providing first aid, water, sanitation and hygiene promotion, public health, and psychosocial support. Equipment including first aid and water, sanitation and hygiene promotion kits will be prepositioned at state and district levels, enabling efficient and timely response of the FMR teams.

4. PROBLEM STATEMENT

We were asked to develop an online Resource Management Portal (RMS) which stored the data of First Medical Responders (FMR's) from 14 states and their respective districts. The website must provide a simple way to view, update and delete information about FMRs. Access must be provided to National, State and District Level users by individual logins based on clearance levels. Finally, it must provide a method to the National Headquarters to contact all FMRs of a state or to a state to contact all the FMRs from various districts of the state at once via E-mail.

5. TECHNOLOGIES USED TO CREATE THE WEBSITE

We have used to the following technologies to create the website:

Front End:

- 1. HTML 5
- 2. CSS 3

Back End:

- 1. PHP
- 2. MySQL

We have used the following software:

- 1. XAMPP Control Panel
- 2. Sublime Text
- 3. Adobe Dreamweaver
- 4. Firebug

5.1. HTML

HTML or HyperText Markup Language is the standard markup language used to create web pages. HTML is written in the form of HTML elements consisting of tags enclosed in angle brackets (like <html>). HTML tags most commonly come in pairs like <h1> and </h1>, although some tags represent empty elements and so are unpaired, for example. The first tag in a pair is the start tag, and the second tag is the end tag (they are also called opening tags and closing tags). A web browser can read HTML files and

compose them into visible or audible web pages. The browser does not display the HTML tags, but uses them to interpret the content of the page. HTML describes the structure of a website semantically along with cues for presentation, making it a markup language rather than a programming language. HTML elements form the building blocks of all websites. HTML allows images and objects to be embedded and can be used to create interactive forms.

5.2. CSS

Cascading Style Sheets (CSS) is a style sheet language used for describing the look and formatting of a document written in a markup language. While most often used to style web pages and user interfaces written in HTML and XHTML, the language can be applied to any kind of XML document, including plain XML, SVG and XUL. CSS is a cornerstone specification of the web and almost all web pages use CSS style sheets to describe their presentation. CSS is designed primarily to enable the separation of document content from document presentation, including elements such as the layout, colours, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple pages to share formatting, and reduce complexity and repetition in the structural content (such as by allowing for table less web design).

5.3. PHP

PHP is a server-side scripting language designed for web development but also used as a general-purpose programming language. As of January 2013, PHP was installed on more than 240 million websites (39% of those sampled) and 2.1 million web servers. Originally created by Rasmus Lerdorf in 1994, the reference implementation of PHP (powered by the Zend Engine) is now produced by The PHP Group While PHP originally stood for Personal Home Page. It now stands for PHP: Hypertext Preprocessor, which is a recursive acronym. PHP code can be simply mixed with HTML code, or it can be used in combination with various templating engines and web frameworks. PHP code is usually processed by a PHP interpreter, which is usually implemented as a web server's native module or a Common Gateway Interface (CGI) executable. After the PHP code is interpreted and executed, the web server sends resulting output to its client, usually in form of a part of the generated web page – for example, PHP code can generate a web page's HTML code, an image, or some other data. PHP has also evolved to include a command-line interface (CLI) capability and can be used in standalone graphical applications. PHP is free software released under the PHP License. PHP has been widely ported and can be deployed on most web servers on almost every operating system and platform, free of charge.

5.4. SQL

SQL is a special-purpose programming language designed for managing data held in a relational database management system (RDBMS). Originally based upon relational algebra and tuple relational calculus, SQL consists of a data definition language and a data manipulation language. The scope of SQL includes data insert, query, update and delete, schema creation and modification, and data access control. Although SQL is often described as, and to a great extent is, a declarative language (4GL), it also includesprocedural elements. SQL was one of the first commercial languages for Edgar F. Codd's relational model, as described in his influential 1970 paper, "A Relational Model of Data for Large Shared Data Banks."[9] Despite not entirely adhering to the relational model as described by Codd, it became the most widely used database language.

6. PROBLEMS FACED

6.1. Whether to use PHP or switch to a newer platform.

We chose PHP, because it is easier to learn, open-source and can be implemented along with most of the database software. Designing in PHP is easy, even facebook.com is made using an advanced version of PHP (HACK). Also, PHP is the mostly widely supported web development language which was aligned with our goal of maximum reach.

6.2. Implementing sort based on different parameters of the table.

We used a jQuery plugin "DataTables" to sort this problem out. *Datatables* is free plugin which provides features such as pagination, search and bread crumb trail. It provides sorting with respect to all parameters in both ascending and descending order as well as gives a professional look to it.

6.3. Implementing search

There was a problem to combine the different search results from the multi search fields. There were errors whenever a field was left blank. We solved this problem using the wildcard character. The problem was successfully solved. This also gave us an option to search within the fields.

6.4. Conversion from Static to Liquid Layout

The previous build of the website had a completely static design to it. That is, the webpage did not adjust itself according to the resolution and the screen size of the device on which it is being viewed. In order to solve this problem, we had to completely redesign each page of the website from scratch.

6.5. Display Format of View Responders Table

We tried multiple formats of the table which displayed the details of the FMRs. The problem was that each FMR row had 16 different columns of data which created a lot of problems while rendering, since all of them cannot be displayed at once without losing clarity. We solved this problem by displaying only the essential details in the table and hyperlinking the name of each FMR to view additional details.

6.6. Setting up a mail server.

When we were working on the Contact all FMR feature we faced a lot of problems choosing and setting up a mail server. We started working on a postfix server but Google seemed to have grey listed us and we had to shift to SSMTP which worked well.

6.7. Securing the Website

The security of a website is a very big responsibility that we web developers have. To secure our webpage from brute force attacks we coded a brute force protection script that would block a username if there are more than 3 failed logins in a window of 10 minutes. Further the passwords are strongly encrypted and salted with md5 encryption and require an upper case letter, a lower case letter, a digit, a special character and a minimum length of 8 characters.

6.8. Setting up the clearance levels

We set up 3 different clearance levels and had a problem setting it up. First we tried to implement different views on the table itself and then we shifted on to having a table of clearance levels with different queries for different levels.

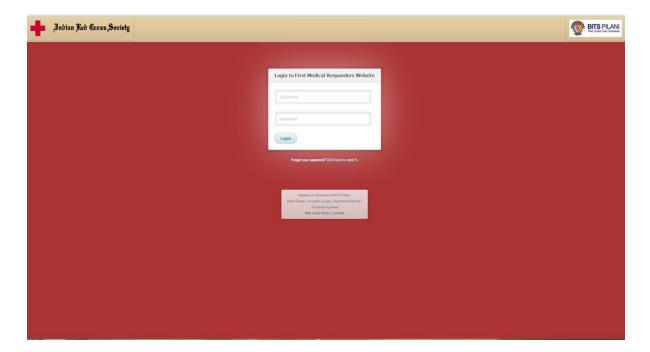
7. FEATURES OF THE WEBSITE

This website is built on the XAMPP stack as mentioned earlier and has a very modern, intuitive and easy to use UI for a wonderful user experience.

The website has following features:

7.1. Secure login page

The login and password information have been stored in database using MD5 encryption. Only authorized officials will have access to the full features. General users will have a limited view to the website. Password requires a small, a capital, a numeral and a special character. More than three failed logins in a matter of 10 minutes would lead to the account being suspended. This is done to **avoid brute force attacks.**



7.2. View Data Of All The Medical Responders

The user can view the data of FMRs depending on their clearance levels. We added a last edited by column to keep malpractices in check.

	Information for First Medical Responders									
how	how 10 • entries									
•	Name \$	Age \$	Sex \$	Address \$	District \$	State \$	Year \$	Mobile ‡	Email ‡	Last Edited ♦ By
1 》 曲	Lo Bipinkumar	38	Male	Janakpuri Apartment-F-103, Janakpuri Soc- 01,Sadhuvasvani Road Rajkot	RAJKOT	GUJARAT	2013	9428037498	lobipin@yaoo.in	admin
2 // iii	<u>Dal Rahimbhai</u>	39	Male	Ya Gaush al madad,Navyug Para Ramnath Para,Juni Jel Same,Rajkot	RAJKOT	GUJARAT	2013	9228767110	Drahim@Yahoo.com	admin
3 // iii	Purohit Nayanchandra	57	Male	Om Rangraj Bharvada, Rajpipala .Narmada -393145	NARMADA	GUJARAT	2013	8469194040		admin
4 ∅ Ш	Dalal Maheshchandra	57	Male	Kaliavad ,Nr:Ambamatana Manir Rajpipala,Narmada	NARMADA	GUJARAT	2013	9925776977		admin
5 》	Rana VipalKumar	31	Male	B/3-33 Payaga Police Line Rajpipal	NARMADA	GUJARAT	2013	9998623032	vipulrana73@Gamil.com	admin
6 加	Darshan Bharvada	23	Male	B-5,New H.Colony B/H Mastar Petrol Pump,Ahmedabad	AHMEDABAD	GUJARAT	2013	8511648255		admin

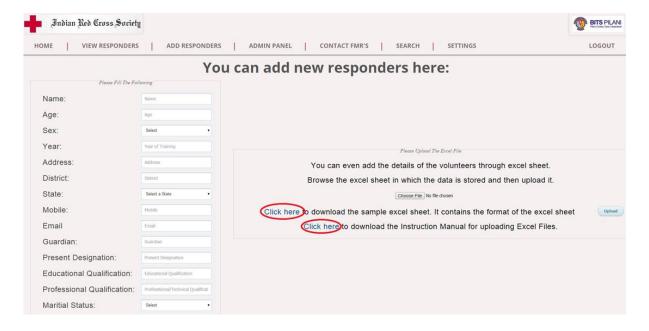
7.3. Individual Details

The user can view the individual details of the FMR by clicking on the name of the FMR, this includes information such as Guardian, Present Designation etc.



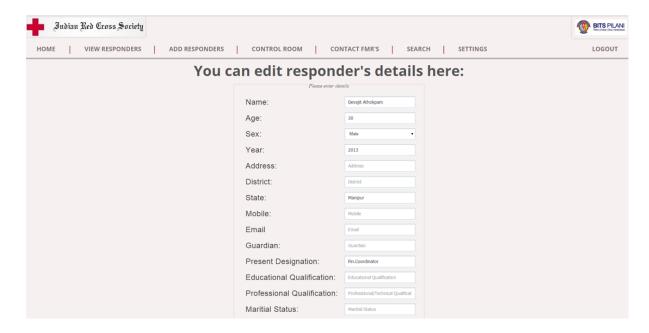
7.4. Option To Add New Responders

The user can add new responders in two ways. One by manually entering the data of each FMR manually or by uploading an Excel Sheet. The site gives an error message if the format of the uploaded file in wrong. Also, the user can download the sample format file and the instruction manual for the format.



7.5. Option To Edit The Details Of FMRs.

The user can edit and update the details of the FMR.



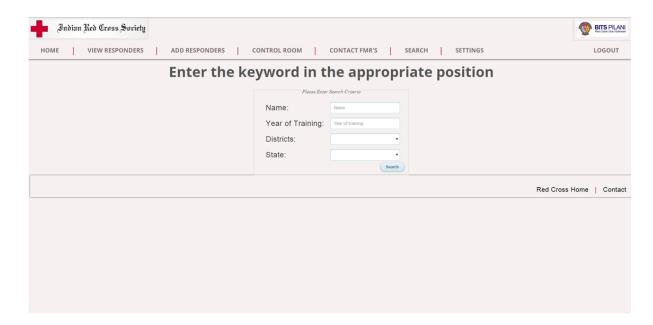
7.6. Option To Delete FMR Data.

The user can delete the FMR details. After clicking the delete button, an extra confirmatory message is shown to ensure that the user does not delete by mistake.



7.7. Search FMRs

Searching the entire database based on four different criteria, i.e. by name, year of training, district and state. Also the search feature looks different for each clearance level.

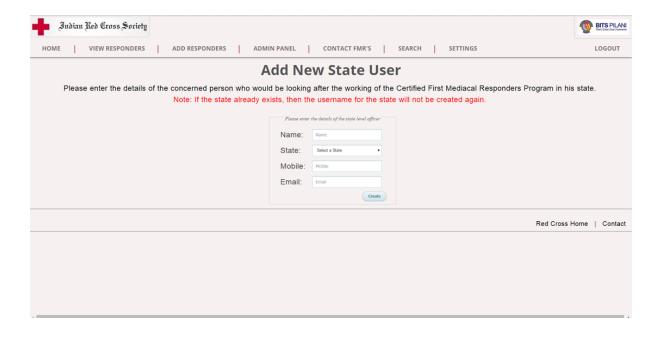


7.8. Export The List Of Volunteers To An Excel Sheet

The user can export the list of FMRs based on the search results in an excel file and can further print the file if needed.

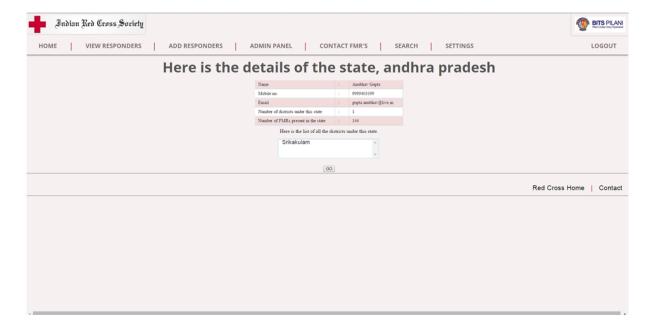
7.9. Add Users

Option to add new state and district users via Admin Panel of National Headquarters.



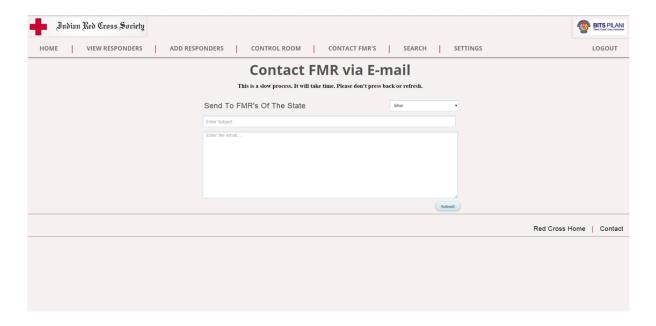
7.10. View User Details

Option to view the details of the state and the district users, that is, the details of the concerned personnel responsible for handling FMR data of a state/district.



7.11. Contact FMRs

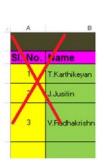
Contact FMRs of all states from National Headquarters Admin Panel and FMRs of all Districts from State Admin Panel.



7.12. Instruction Manual: Excel Upload

This is a three page PDF document which contains instructions on how to format the excel sheet in compatible format.

- 1. It should only be an EXCEL File(extension of file can be either .xlsx or .xls).
- 2. Excel File *should not* have a "Serial Number" column like SNO., Serial, No. etc. The first column *should be* the "Name" field.



7		. 1	v	JA 140
	A	В	С	D
ı	Name	Age	Sex	Address
2	PElamurugan	41	Male	# TC3, ⁻
	M Panneer Sk	53	Male	# 25/15- Thimma a Gouuji Street, Krishnaç (Po, TK,DT)

8. LAUNCH OF OUR WEBSITE

On 9th July 2015 our website was officially reviewed in a seminar attended by major dignitaries of the Indian Red Cross Society National HQ including Secretary General Dr S.P Aggarwal, Joint Secretary Dr. Veer Bhushan, Chief Web Architect Dr. Anand Sethi and Disaster Management advisor Mrs. Rina Tripathi. It is now accessible on the domain https://www.fmr-ircs.in after the permission of Secretary General Dr. S.P Aggarwal.

9. CONCLUSION

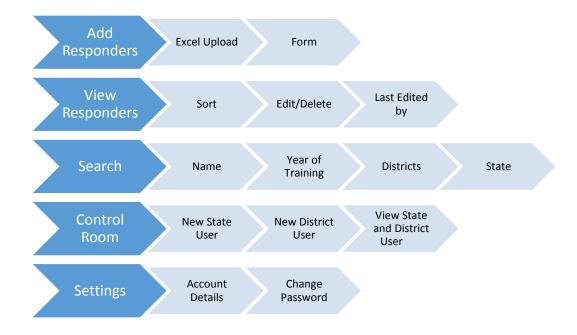
Our experience at the Indian Red Cross Disaster Management Department has been quite enriching and the practical knowledge we gained is unparalleled. The opportunity to work and interact with students from other campuses has broadened our horizons.

The First Medical Responders project was a great learning experience, giving us the rare opportunity to apply our skills to real-world applications. We learnt the industry-standard web development technologies and were directly exposed to niches associated with working in a Humanitarian Organization.

Overall this has been an amazing experience. We understood the working of the various wings of the Indian Red Cross Society. This will be beneficial in the future when we work with other organizations.

10. APPENDIX

SITE MAP



11. REFERENCES

- 1. HTML and CSS Web Design and Patterns, John Duckett, 2012.
- 2. Interactive Web Design using JavaScript and jQuery, John Duckett, 2010.
- 3. Building back ends that scale, Jim Jefferies, 2009.
- 4. http://www.w3schools.com
- 5. http://www.stackoverflow.com
- 6. http://www.lynda.com
- 7. http://www.codeacademy.org

12. GLOSSARY

Brute Force – An Attacking technique that tries to use a list of popular passwords on a

website to get access. [14][15]

CSS- Cascading Style Sheets [8][9]

DataTables – A jQuery plugin that makes beautiful tables. [12]

HTML- HyperText Markup Language [8] [9][10]

JavaScript – Front End Scripting Language [10]

jQuery – A JavaScript framework [12]

MySQL – A Database Management System [8]

PHP – PHP Hypertext Processor [8], [10], [12]

PostFix – Another popular mail server [13]

SSMTP – Secure Simple Mail Transfer Protocol [13]

XAMPP - Unix Apache MySQL PHP [8], [15]