Tribhuvan University
Institute of Science and Technology
BSc. CSIT Program

St. Lawrence College

St. Lawrence College
Chabahil, Kathmandu

Project Proposal on
Blood Databank

For the partial fulfillment of Bachelor's Degree of Computer Science and Information Technology

Under the Supervision of
Mr. Tika Dahal

Submitted by
Akash Acharya (5667/071)
Bijay Karki (5674/071)
Dipesh Bhandari (5677/071)
Samrat Acharya (5691/071)

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SUVARAMVA BLOOD DATABANK APRIL 1, 2018

OVERVIEW

1. Project Background and Description

Blood is one of the major aspect of life. The need of blood and its importance is indescribable. From the start of medical enhancement blood transfusion has been a major issue. The type of blood required, the process of storage and finding and contacting the donor has always been a problem in the history of blood transfusion.

Blood Databank is a software that helps to reduce one of the major issue i.e. finding and contacting the blood donor. Its major task is to keep tracks and records of blood donors for easier contact with them.

We see many blood requests frequently added in various social medias. Many of the blood requests are not handled properly. The hospital does not keep the digital record of the requests. Also, the record keeping in hospital is kept manual. In case of emergency camps that include various disaster relief camps, mountain base camps and war refugee camps we have no proper access and availability of blood during the time of need. This software helps in keeping the records of the donors available around the requested area within the range of 3-5 km (may be altered). Whenever there is blood request, the software checks which group of blood is required and which donors are available in that particular area. When it determines the donors list, it sends message to all the available donors. Thus, this software tries to resolve one of the major issue resulting in blood transfusion.

Blood Databank will be developed using the Python platform. SMS API will be implemented on the software so as to provide the functionality of message sending to the donors. The database will be maintained using SQLite feature that can be implemented in Python.

The software will be implemented using the “V” model of development.

2. Project Scope

The implementation of this software has a wide scope of use that ranges from the use in hospital for fresh blood to the emergency cases that may arise in various outer camps. We can view the scope of this software based on the following points:

- We find many blood request cases on various social medias and groups on daily basis
- The records for blood requirement are stored in paper manually and no digital information is stored.
- Blood is not stored in hospital, rather it is stored in blood bank
- Blood from blood bank may not be available always when required
- There are many cases of blood mafia that results in unavailability of blood or increased cost of blood which can be minimized
- The software can be used in hospital as well as emergency camps that includes disaster relief, mountain base camps or war refugee camps
- Fresh blood is an essential in:
    - Heart Surgery
    - Major Accident Surgery
    - Organ Transplant

3. High-Level Requirements

The major requirements for developing the software are:

- Database Integration
- SMS Integration
- Real Time Access and Control
- Internet to connect Software to Database

Database Integration

The software should maintain a database that contains the list of donors that contains the fields: Name, Blood group, Location and Number. Also, another database is maintained by the software that keep records of the donors who donated the blood. It should contain the fields: Date, Name, Blood Group, Location and Number. Whenever there is blood request, the software searches the database for the list of available donors based on the location (may be defined via hospital name/location). It then sends SMS to the concerned donors which is another important requirement of the software “SMS Integration”.

SMS Integration

After the list of donors are retrieved according to the location of request generated, the software then sends SMS to all the donors for their assistance in providing blood to the concerned parties/patients.

Real Time Access and Control

The software should be able to discern the donors based on whether they have donated the blood recently. It is inconvenient to send message about blood requirement to the donors who have donated the blood recently. Therefore, the software must be able to filter the donors based on the eligibility. The eligibility can be maintained based on the database that has the data of donated date of the donor. When the query is provided to find the list of available donors it checks the date from the database and if the date exceeds more than 3 months only then the donor is sent the message otherwise they are not bothered.

4. Deliverables

Internal Deliverables (within project management group)

- Blood request analysis data and reports
- Python environment to work as a platform
- Working module of SMS API on python
- Working module of SQLite for database management
- Analysis report of various unit and integration testing

External Deliverables (For external concerned parties and end users)

- Final documentation of software development process
- Analysis report of system testing
- A complete software application
- Final documentation and report of the software

5. Affected Parties

The following list contains the concerned parties that are directly affected by the software:

- Hospitals
- Emergency Camps
- People involved in blood mafia

Hospitals

These are the concerned parties on which the software is based on. The software is specially made for use in Hospital.

Emergency Camp

These are affected in same way as of Hospitals. These are also the implementation site for the software.

Blood Mafia

The software has direct impact on Blood Mafia. The business agenda regarding blood via various mafia agencies will be reduced in a rapid way. Also increase in illegal blood selling can be reduced.

6. Affected Business Processes or Systems

Various apps have been used in Nepal that tries to cover up the blood requirement request managing the database. The following are the top apps used in Nepal for the similar purpose as that of our software:

- EBlood
- Blood Donor+
- Blood on Request Nepal
- Blood Emergency
- Blood Request App

The above-mentioned apps are solely based on Android platform. Also, most of the apps are out of service these days.

7. Specific Exclusions from Scope

There can be various additional implementations that can be added to the software. The current focus of the software is to create its own database and provide service in hospital and emergency camps. However, the software can be upgraded to work in conjunction with blood bank as well. Blood records of various blood banks can be managed in same platform. Also, the database contents can be shared with all parties (hospitals, camps and blood banks).

8. Implementation Plan

The software will be implemented using the "V" model of development. The implementation includes following phases:

1. **Business Need**
   Business Need includes the background study of the project and analysis required to make this project successful.

2. **Definition Requirement**
   In this phase, possible requirements are discussed. The following aspects are handled in this stage:
   - Requirement Identification to study similar existing system and Requirement Collection
   - Feasibility Study to study technical, operational and economical aspect

3. **System Design**
   Data Flow Diagram and Entity Relationship Model is developed after the requirement analysis. A simple model of system is shown using the UML Diagram

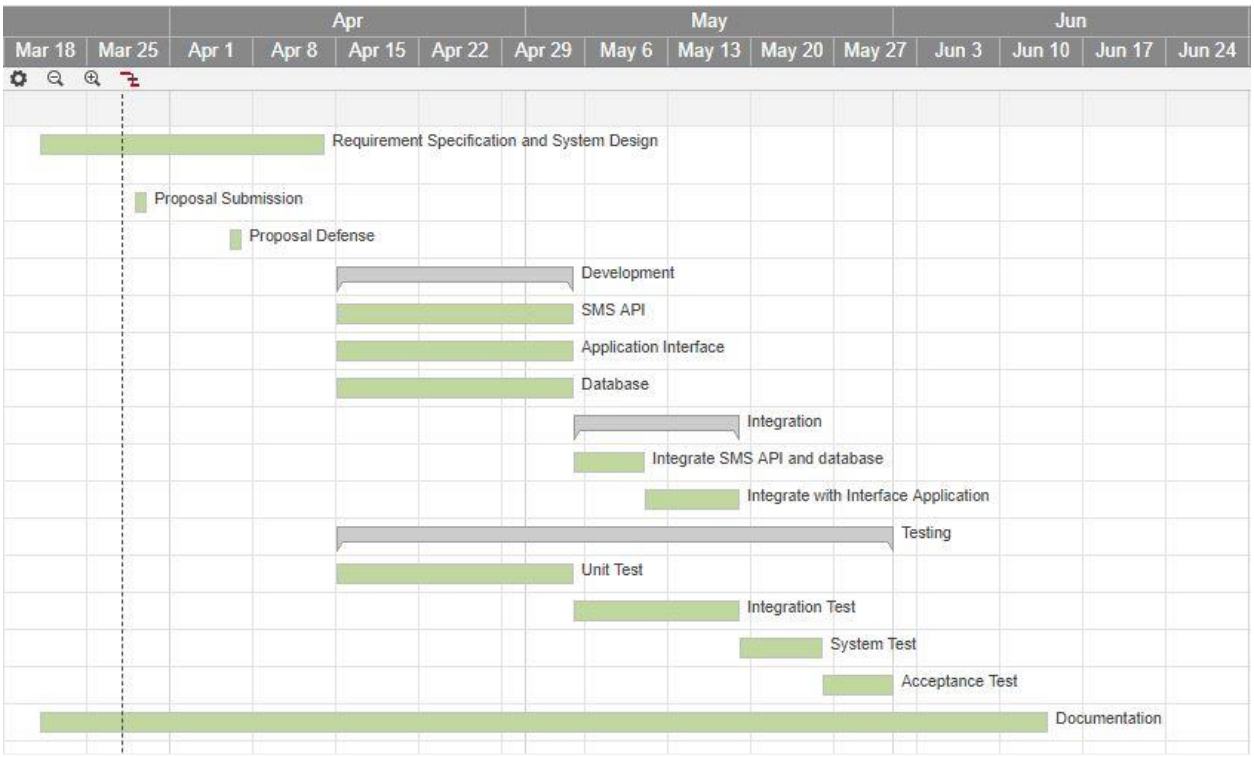
4. **Code System**
   The major aspect of development takes place in this phase. Codes for SMS integration and Database integration are written. Python platform is used for developing the software.

5. **Test**
   Test includes sub-phases like Unit Test, Integration, System Test and Acceptance Test.
   On Unit Test, we will be testing the developed SMS API and SQLite Database individually to see whether the code system works well or not.
   Only after the unit test, we will integrate SMS API & database and final integration test will be conducted.
   We will run the whole integrated system on Interface and system test will be conducted to achieve the requirements we discussed
   We will conduct acceptance test as final test to see whether we achieve business need or not.

   Note: The project will be conducted such that individual test are conducted and the success of one test leads to another test

9. High-Level Timeline/Schedule

Task Name	Start Date	End Date
Requirement Specification and System Design	**03/21/18**	**04/13/18**
Proposal Submission	03/29/18	03/29/18
Proposal Defense	04/06/18	04/06/18
− Development	**04/15/18**	**05/04/18**
SMS API	04/15/18	05/04/18
Application Interface	04/15/18	05/04/18
Database	04/15/18	05/04/18
− Integration	05/05/18	05/18/18
Integrate SMS API and database	05/05/18	05/10/18
Integrate with Interface Application	05/11/18	05/18/18
− Testing	04/15/18	05/31/18
Unit Test	04/15/18	05/04/18
Integration Test	05/05/18	05/18/18
System Test	05/19/18	05/25/18
Acceptance Test	05/26/18	05/31/18
Documentation	03/21/18	06/13/18



APPROVAL AND AUTHORITY TO PROCEED

We approve the project as described above and authorize the team to proceed.

Name	Title	Date	Signature
Bishnu Neupane	Bachelors Director		
Deepak Thakur	Co-Ordinator		
Tika Dahal	Supervisor		
Ridip Khanal	Supervisor		