AFYA

*“Redefining access to health care”*

Project Proposal

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**INTRODUCTION.**

***BACKGROUND.***

It is clear that the health demands of the 21st century require an entirely different approach to health care. We need to think less on sustaining the legacy systems and patterns of health care and begin focusing on the initialization of new and radical current and future services.

New systems of health care must put the patient at the centre and support all their needs. Putting patients at the centre means putting them in the driving seat when it comes to change. It is important to note that the greatest untapped resource in the application/system is the patient. This requires new models and new technology in order to better connect people to the various doctors and health institutions.

Great progress is being made in this area and these changes are important. And with people continually accessing all their services in mobile devices nowadays. It would be suitable to try and take the health services using a mobile-first approach.

***MOTIVATION.***

When a person who is seeking medical attention wishes to see a doctor say a doctor, the procedure normally requires that the person physically go to the hospital/clinic to make an appointment. This may not seem to be easy for all people in need of treatment as some ailments may bring about a general feeling of fatigue which greatly limit movement from one place to another.

Making an appointment also requires checking the availability and schedule of the doctor so as to know when and how to arrange the appointment. Most doctors operate in a loosely organized manner and this makes it very difficult to know when they are free, or occupied, in the work area or absent.

Long queues of sickly people usually seem to never end in hospitals. People seeking treatment will want to get the services of the doctors and often come to make an appointment at almost the same time, each patient assuming that the doctor will not be indulged. This results in accumulation of people into a queue. Leading to poor rate of service.

A person seeking treatment would feel much more comfortable sharing about his medical condition with a doctor whom he/she has some information about i.e. View the doctors profile, run a background check on quality of service. Unfortunately, this doesn't seem to be the case in the current.

***GOAL.***

Our application will make patient-doctor interaction more flexible and easier through the introduction of on-line appointments.

***OBJECTIVES.***

Our proposed web application, AFYA, will enable patients to look up a doctor on a doctor list, view the profiles of the doctors to know a little information of the doctor before making an appointment with the doctor. This can be done from any device capable of accessing web services.

Doctors will also be able to have a better organized schedule as they will be able to manage the number of appointments that they can address per day. The doctor will also have the option of referencing patients to other doctors who are more specialized in handling the patient’s case.

***AUDIENCE.***

The primary audiences of this project are the doctor and the person seeking treatment. Other people that we want to reach are researchers and analysts in the fields of health who will assist in understanding the primary audiences by designing a user-friendly, comprehensive database.

**PROJECT DESCRIPTION*.***

***TECHNICAL IMPLEMENTATION.***

The web application will run off a cloud-hosted web server on a Unix-based operating system. The web server will be developed using Node.js which is JavaScript designed to run on the server. Data will be dynamically generated in our web pages using Angular.js.

By using angular, separate pieces of our application, such as navigation and content, will integrate easily with the static components of the web application and will combine on the fly. Dynamic content, such as database access will integrate easily with the static components of the website.

We will use the Sass compiler to generate CSS which will allow for more flexibility within the design of the web app and also to improve ADA compliance. Plus if design changes in the future, it will be easy to change the style sheet without manipulating a lot of code.

***DATABASE IMPLEMENTATION.***

A MySQL database will store and retrieve the data for the database section of the website. We will use a database client known as Sequelize, which is also JavaScript, to perform the various queries and generate viewable content from the database in a suitable format. The database will store the doctors details, the appointments, the

**PROJECT MANAGEMENT.**

Brief profiles of each team member and their general duties follow below. Some responsibilities will be shared amongst the team members to ensure overall success of the project.

**Bilstone Adora** - pursuing BSc in Computer Science, will focus on the server side programming/ back-end. He will also serve as the project manager and will oversee the progress of the project. He is in charge of ensuring that the other members remain in good communication with one another.

**Rebecca Chelagat** - pursuing BSc in Computer Science, will focus on the front-end design and programming. She will ensure that the web application is functional, easy to use and aesthetically pleasing.

**Ian Nechenje** - pursuing BSc in Computer Science, will focus on the front-end design and programming. He will work with Becky in the design and front-end UI of the web application. He will also assist in the documentation of the project.

**John Wayodi**- pursuing BSc in Computer Science, will focus on the server side programming/ back-end. He will also assist in the database design and will also be responsible for the documentation of the project.

Since the group members will work on the same site files, we will be sub versioning software on GitHub using git. This will prevent versioning miscommunication and will ensure that all members are working on the most updated version of the project files.

Both the work breakdown structure and the statement of work have been attached as a separate document.

***Timeline.***

We have divided the project into tasks and milestones as shown in the Gantt chart below.

| *Task* | **February** | | | | | | March | | | | | | April | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Dates due | 10 | | 16 | | 25 | |  | | 12 | | 20 | | 1 | | 8 | | 10 | |
| Skeleton site |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Complete site |  |  |  |  |  |  | | | |  |  |  |  |  |  |  |  |  |
| Usability test |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |
| Final site |  |  |  |  |  |  |  |  |  |  |  |  | | | |  |  |  |
| Written proposal |  | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Progress report |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |
| Final presentation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | |  |
| Final report |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |

**RISKS.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Risks*** | ***Likelihood*** | ***Impact*** | ***Risk Management Approach/Mitigating Actions*** | | ***Early warning signs*** |
| Inadequate Skills in new fields in web development | Medium | High | Team members have to learn and internalize new web development technologies such as NodeJS, AngularJS within a short period of time. | | Inability of project team to correctly setup the project skeleton. |
| Culture: Tendencies of the project being rejected due to people resisting change or just plain negative attitude. | Medium | Medium | Train users on importance of the application in accelerating access to health care. | Many new applications in the market tend to get rejected. | |
| Finance: Funding the project. | High | High | Contact sponsors for funding. Explore free IBM blue mix services to cut down on hosting costs during testing. | The need to utilize a cloud platform for deployment. | |

**FUTURE DEVELOPMENTS.**

The success of this project will depend on the number of people who will take the advantage of the appointments module provided within the web application.

We will improve the appointments module, from making one-on-one appointments to being able to make group appointments whereby a group of patients can all have an appointment with the same doctor if they have a collectively related health issue.

**RELATED PROJECTS.**

Some related health apps in Kenya which aim to reduce the communication barrier between patients and doctors are:

a) [Med Africa](http://medafrica.org/) for smart phones and less powerful feature phones. It is a Nairobi based company. It is an app that aggregates information from many sources. Currently, it supplies first-aid recommendations, issues health alerts, and also supplies a list of doctors and dentists, making all this information available to the public.

b) [MHealth](http://allafrica.com/stories/201504230112.html), is a service launched in Nairobi by the collaboration of Airtel and a hospital, which will allow customers to access medical services through their phones. It allows all Airtel customers to access health services at home at pre-defined rates.

**CONCLUSIONS.**

We will design and implement the AFYA web application, creating a platform which makes medical treatment easy and flexible for patients through the booking of appointments from any device (mobile phones, personal computers) without having to go physically to make the appointment.