

IZUCHUKWU CHIDERA VICTOR

18/ENG05/024

MECHATRONICS

STRUCTURED PROGRAMMING

## WEBBASED PROGRAM TO HELP TACKLE COVID 19

The main aim of this project my company has been tasked with is to detect and help keep adequate track of the number of people infected by the virus and also help filter out how severe the number of infected patients are.

For this program to be in full effect, there is need for a database of the entire population within a selected region and also a central database collated from all the various health centres which will have theirs also. As required, the program is set to also transmit data obtained wirelessly and can be accessed via the web.

We hope that by mapping how many people are self-reporting symptoms and how many are self-isolating, we will empower users with knowledge of the extent to which the disease may be present in their local communities.

Every stage in a patient is to be categorized into three stages using colors. Green – for mild, Orange- for POSITIVE and red- for severe

## USING SOFTWARE DEVELOPMENT LIFE CYCLE

### **CONCEPTUALISATION**

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### **SPECIFICATION**

Sign in/Registration Module- is where new patients can register and old patients can sign into the application. Information such as full-name, email address, gender, blood group, address and password will be provided here

Census module contains the number of people in a selected region, say Lagos and also the number of reported cases showing severity

- Health Tips Module contains healthcare information that is of advantage to the patient and the public on ways to contain the virus and manage oneself
- Help Module contains information about challenges a user can encounter while using the application and the solution to the challenges.

#### FOR MEDICAL STAFF

- Login/Registration Module allows authorized doctors/pharmacist/laboratory scientist to log into the web application to in order to gain access to the application and also new doctors/pharmacist/laboratory scientist are able to register into the application
- My Patients Module displays the patients that are available for the chat session to be initiated. From here, the doctor can select a patient to chat with, prescribe drugs and tests for the patient and also make case notes concerning the patient's health. The pharmacist and laboratory scientist can chat with patients through this module to verify drugs and
- Test Module displays information about the test that can be carried out in the hospital laboratory. editing of the tests.
- Patients Module contains information about patients that has registered into the mobile-Health application software. Information such as username, status, name, blood group, gender, date registered and actions are found here.

#### DESIGN

##### ALGORITHM

START

2. READ USER ID

3. READ GREEN, ORANGE , RED //USER'S SEVERITY VALUES = 0

4. STORE GREEN, ORANGE , RED IN RO
5. READ AIR SAMPLE = S
6. READ SCAN RESULTS = SCAN
7. STORE S,SCAN IN V //USER'S INPUT VALUES = V
8. IF V=0
9. PRINT "POSITIVE"
10. ELSE
11. PRINT "NEGATIVE"
12. WHILE V=0
13. IF V=GREEN
14. PRINT "POSITIVE, STAGE GREEN"
15. IF V=ORANGE
16. PRINT "POSITIVE, STAGE ORANGE"
17. IF V=RED
18. PRINT "POSITIVE, STAGE RED"
20. END

#### IMPLEMENTATION

This project will be implemented using an android based operating system.

The android application will be the first. The Pandemic-Health application software will be written to be installed there too.

- The Application Framework layer provides many higher-level services to applications in the form of Java classes. Application developers make use of these services in their applications.
- On top of Linux kernel there is a set of libraries including open-source Web browser engine WebKit, well known library libc, SQLite database which is a useful repository for storage and sharing of application data, libraries to play and record audio and video, SSL libraries responsible for Internet security etc.

#### TESTING AND DEBUGGING

The program will be first tested in a health center to know if there are any glitches and bug fixes will follow suit.

## HARDWARE AND SOFTWARE COMPONENTS

### SOFTWARE COMPONENTS

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- **Data management** allows medical practitioners to add and store patient information electronically and allows physicians to view it.
- **Patient history** stores information about existing problems, symptoms and degree or severity of the viral infection etc.
- **Patient data management** allows healthcare providers to manage and track patients' medical records.
- **Chat/video** features provide secure messaging and live video visits and let patients and doctors share medical documents.
- **File attachment feature** allows users to attach and store pictures and any other files related to a patient's treatment history.
- **A search** feature lets people search a particular region and know the rate of infection in that area.