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MATRIC NO: 19/ENG05/072

DEPT: MECHATRONICS

COURSE CODE: ENG 224

**QUESTION:**

COVID-19 has caused a serious pandemic across the world, with serious impacts being felt in all areas of humanity. As a young engineer working with a multi-national health company, you are saddled with the responsibility of designing a web-based application that can detect, display, rate (degree of infection), store, transmit data obtained wirelessly and access the data via the web together with other features which the board of directors allows you to come up with.

CONCEPT OF THE SOFTWARE APPLICATION:

To develop software that can test whether a user has the virus or not using the user's whereabouts for the last 30 days, possibility of contact with a positive covid-19 patient and geographical region.

SOFTWARE FEATURES:

Database Management System (DBMS):

A database program helps in easy manipulation of data and allows users to perform multiple tasks with ease. It assigns data to their storage locations; organizes, and manages a large amount of information within the web-based application.

Database Security:

This is concerned with protecting the contents of the database from malware functions which can cause incidents like data leakage, interruption, etc. It also helps in protecting data from design flaws and program bugs in database, and also data manipulation or loss. Hence, data confidentiality and integrity is guaranteed. Most of the computer-based data security measures include; access controls, data encryption, etc.

Virtual Sensor:

This produces signals which effectively analyze biological operations in the human system under detection, in order to determine whether the system is positive to the virus or not.

Wireless Data Transfer:

This helps to wirelessly transfer the data gotten from the database of the web-based application to the web server after analysis, categorization, and information output.

HARDWARE FEATURES:

Display Unit:

This is a projecting mechanism that displays the output result after detection has been carried out; it displays the test confirmation, whether it is positive or negative.

Main Memory (RAM):

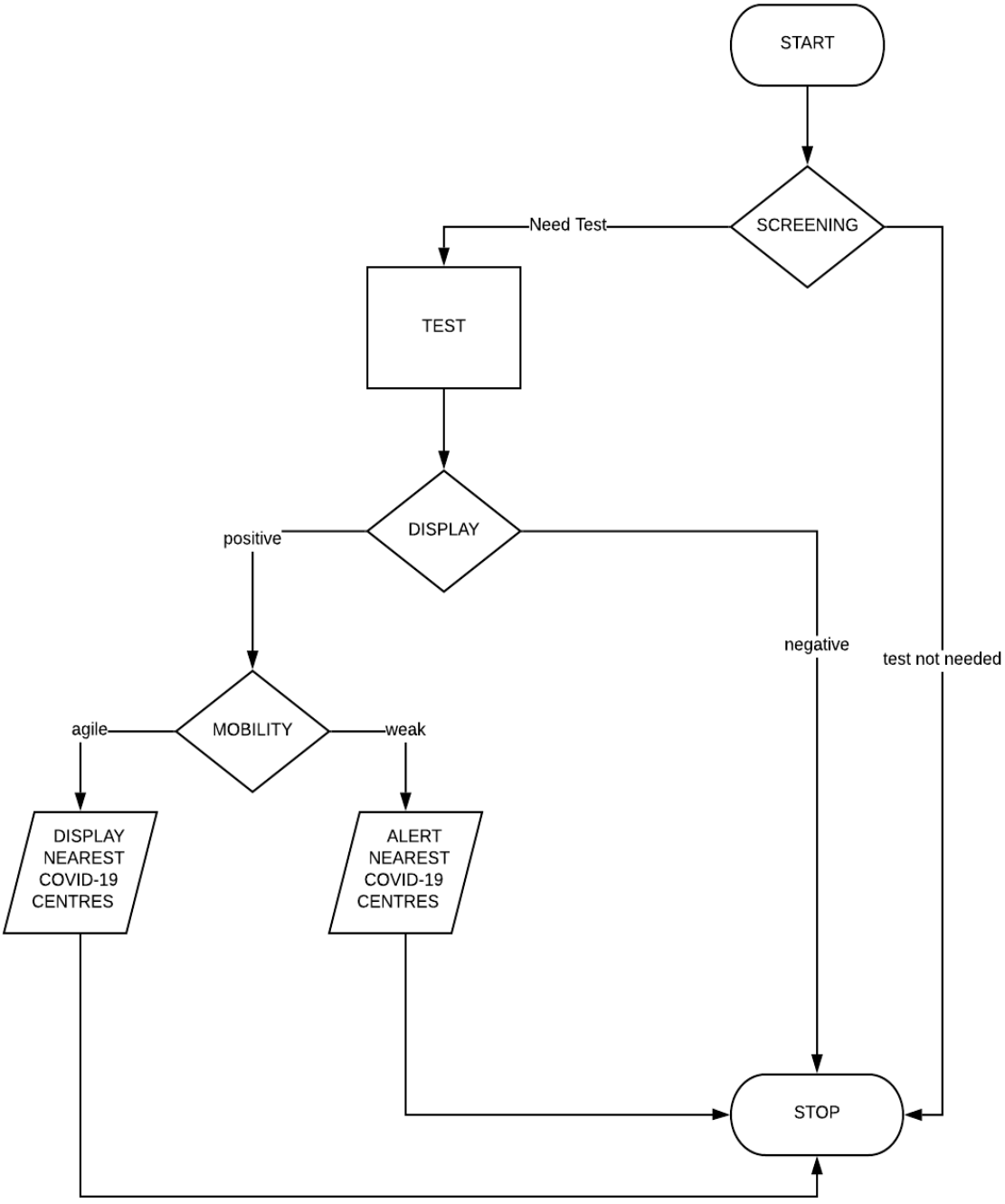
This unit helps to store data that is currently being processed. It stores data after detection and virus positivity confirmation, and it helps for easy retrieval of the data when needed for analysis.

Micro-processor Unit:

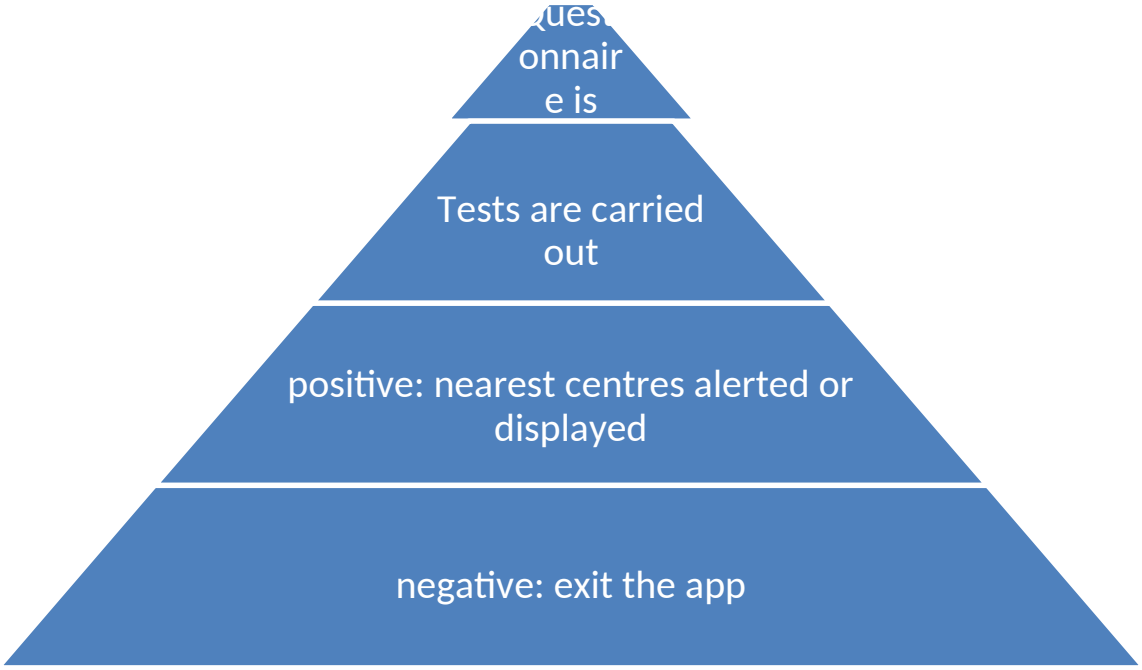
This is the control unit of the web-based application server where all the functions assigned to the web-based app are carried out in their order of sequence; from detection to display, to analysis and to data storage.

SOFTWARE DESIGN:

FLOWCHART:




TOP-DOWN DESIGN APPROACH:


ques
onnair
e is
Tests are carried out
positive: nearest centres alerted or displayed
negative: exit the app