KIFORDU BENEDICT

18/ENG06/036

MECHANICAL ENGINEERING

ENG 224

COMPUTER PROGRAMMING

ASSIGNMENT

1. The name of this application would be the **E-DOCTOR.**

This application (app) has the ability to detect irregularities in the human body, display temperature, type of disease/infection, and degree of infection.

The design is based on the software development cycle which is;

PLANNING ANALYSIS DESIGN IMPLEMENTATION

TESTING MAINTENANCE.

The creation of this application is inspired by the current pandemic the world currently faces, that is; the covid-19 virus. The aim of this application is for is to be able to precisely and effectively detect diseases.

I had thousands of bytes of data analysis which I integrated into my algorithm design which include;

**.** The average human temperature ( analysing what range would be regular to detect any form of fever) which is around 36.7-37.

**.** Symptoms of various diseases.

**.** Average body system rates e.g. heart rates, respiratory rates, pulse, and blood pressure.

**.**  Electrical activity, patient positions.

A representation of the design is shown below with a structured flowchart and an algorithm.

A python code was implemented to integrate the algorithm into instructions that could be understood by the computer system.

Since this is a prototype it was only tested on a mild flu it was able to come to a conclusion based on high temperature and respiratory failure, applying these sensors on a hardware device that appears like a box with a conical pin sticking out that will be attached to the user which will test for certain conditions.

1. **HARD WARE FEATURES**

The hardware features of the design consist of a digital box and a long conical pin which is an integrated sensor. The box displays various outputs like the concluded disease result, temperature , blood pressure and also a breakdown of the problem related to your result for example high blood pressure, temperature readings if you pulse exceeds the regular rate . The long conical pin is basically in the form of a clinical thermometer with a long and a pin like sensor at the tip.

**SOFTWARE FEATURES**

The software features of the design consist of a program using a python coding system to execute the steps and also bring it to an end. Its entirety comprises of signals which attain certain conditions in this case is physical conditions of the user, it is connected to transducer with converts measured values into signals that can be understood and displayed. This integrates a well constructed set of instructions which executes with precision an accuracy with an installed mini data base to ensure body conditions are the regular observed readings otherwise we can say there is a problem.

Below is a table for the various sensors integrated into my designs and their various purposes.

|  |  |
| --- | --- |
| **The sensor** | **Biometrics measured** |
| Pulse sensor  Sp02 sensor | Heart rate (HR)  Arterial oxygen saturation (sp02) |
| Airflow sensor | Respiratory rates (RR) |
| Body temperature sensor | Body temperature (TEMP) |
| Muscle /electromyography sensor (EMG) | Electrical activity of muscles |
| (ECG) sensor | Assess the electrical and muscular functions of the heart |
| sphygmomanometer | Diastolic blood pressure (DBP) |

1. FLOWCHART

START

**Sensor detection**

Symptoms

Disease classification

And grading

END

ALGORITHM

1. Start
2. Collect the required information from the user for processing.
3. Read through database of the system to determine body condition.
4. Breakdown data and analyse each body condition.
5. Transform the input from the sensors into a visual output.
6. Check for errors by debugging.
7. Stop
8. TOP DOWN APPROACH

**HEALTH HISTORY OF PATIENT**

**SUBSYSTEM** **STORE DATA SUBSYSTEM**