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19/ENG06/021

MECHANICAL ENGINEERING

A

* Conceptualization: Web based application is built in a free standing machine that is capable of testing, detecting, storing and transmitting information on Covid-19 while reducing the level of contact between patient and medical staff.

* Specification:

I. Sample collection process.

II. Test kit: check for presence of two specific SARS-cov-2 genes

III. Display result:
 If two specific SARS-cov-2 genes are present print and record positive.
 If non present record negative.

IV. Stores data collected

V. Uploads data to the Internet and WHO data base.

* Testing and Debugging: Samples from both ~~pos~~ confirmed positive and negative patients shall be taken and processed to check efficiency and accuracy of machine and adjustments shall be made to improve effectiveness.

* Design: Cartridge or analysis board present where the samples collected using swabs are placed, then the board is placed in the machine where real-time reverse transcription polymerase chain reaction shall take place to identify if SARS-cov-2 genes are present or not. The monitor shall display the result of test and store the data in the internal hard drive or storage disks. The with the connection to server the result is uploaded to the Internet and a keyboard which is connected to another monitor will take the patients information and create a personal catalogue where the information can be accessed on the ~~med~~ hospital/health centers web-base.

B hardware

- 1 Cotton swabs - for sample collection
- 2 Cartridge or analyzer board: where the sample is placed
- 3 Chamber or oven: where the reaction and test is carried out.
- 4 Two monitor: one one to display result and the other to input patients data.
- 5 Key board: for inputing data.
- 6 Printing and server.
- 7 Storage disks, hard drive

Software

Bii Software

- Access control
- Programed sensors
- Coding language JAVA
- Data base

C Algorithm

- Step 1: Start
- Step 2: Register patient
- Step 3: Collect Sample
- Step 4: Perform test
- Step 5: If 2 SARS-COV-2 genes are present
- Step 6: Print positive
- ~~Step 6~~ Determine rate of Infection
- Else
Print negative
- Step 7: Store data on hospitals data base
- Step 8: Transmit to Internet
- Step 9: STOP

Flowchart

