International Journal of Engineering Sciences & Research Technology

(A Peer Reviewed Online Journal)
Impact Factor: 5.164

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INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH TECHNOLOGY
PILOT PROJECT OF HEALTH TESTING MACHINE

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ABSTRACT
Like an automated teller machine (ATM) in a bank health ATM is a touch screen kiosk hardware designed for managing health related information which allows individuals to access their personal health information through any internet connected web browser. Health   ATMs provides quick and convenient preventive health screening they can also connect patients with certified doctors using high definition video conferencing digital medical devices and web/mobile applications. In urban locations these ATMs serves as wellness kiosks as well.

KEYWORDS: Health testing machine, Kiosks, testing, report generation, video conferencing.

1. INTRODUCTION
With the increasing prevalence of non-communicable diseases the mandate is no longer about diagnostics but about preventive screenings and early identification of diseases. This is precisely where this technology play such a pivotal role. By providing seamless access to quality caregivers and affordable and quick diagnostics health ATMs empower consumers to be more cognizant about their health and provides them with better alternative than retail care clinics and diagnostic laboratories. Not just for preventive health but health ATMs when used at primary care clinics rural health centers and government hospitals can also go a long way in cutting down on patient wait times and more crucially addressing the skewed doctor-patient ratio. By getting diagnostics done through the ATM results can be transmitted and verified at a centralized control unit. The unit can be then instruct the physician on the ground about the diagnosis and treatment protocols. The ATMs will do the same work as an ATMs machine do for a BANK in reducing the load of physicians and hospitals and moving the needle towards early detection and prevention.

A. Pilot project of health testing machine
 In order to provide affordable medical tests services to public we are establishing this project called as "pilot project of health testing machine" Through this health testing machine the patients can check 16 parameters related to health   which are, bone mass, body fat, hydration, pulse rate, height, muscle mass, body temperature, oxygen saturation, basal metabolic rate, muscle quality score, metabolic age, Systolic BP, weight and body mass index.

All you need to know about the health testing machine: One can easily get the health check-up done by simply standing in front of the machine. After that enter your personal and basic details like name, contact details, fingerprint. As a cherry on top, it gives instant health reports to the passengers. For the convenience of the travellers, a medical attendant is also present at the health testing machine. Patients will be provider with their report and patients can also consult the well -known health provider via HD video conferencing.

2. MATERIALS AND METHODS

A. Proposed block diagram
This system deploys a pilot project of health testing Machine using the processor raspberry pi-3 of model B and arduino Uno controller, sensor modules which are used for testing. The system also has a camera through which the image of a person can be captured and stored in the database. The same camera can be used for video conferencing with the well -known health provider. System has a power supply unit which provides the power to this system. Oximeter is used for measuring the blood pressure and pulse rate of the user/patient. To run oximeter

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THOMSON REUTERS

[Nandi *et al.*, 9(6): June, 2020]
IC™ Value: 3.00

ISSN: 2277-9655
Impact Factor: 5.164
CODEN: IJESS7

we need an amplifier which can be controlled through the arduino controller hence we have the separate controller. All the data from the respective devices are sent in the form of output data to the processor. The processor performs the required operations with this data and provides the required output on the display device. Monitor is used as a display device and to control some actions on the display device, keyboard and mouse are connected to it.

Figure 1:
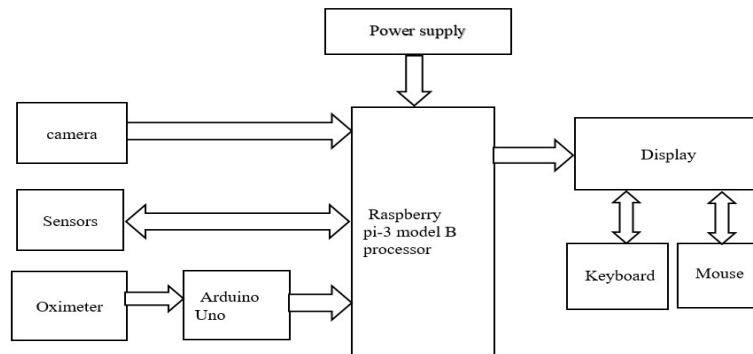
B. Implementation

A Pi camera which is connected to the processor through the camera socket present on the processor. We are using a moisture sensor dht11 sensor and ultrasonic sensor which are connected to the pins of the processor. We are using a load cell of 10kg whose output will be amplified through the amplifier and the amplifier is connected to the pins of the processor respectively. The oximeter is connected to the arduino uno (ATmega 328p) and the UNO is connected to the processor. Raspberry pi-3 processor is connected to the monitor through HDMI cable. The keyboard and mouse are connected to the ports of the processor.

Figure 2:
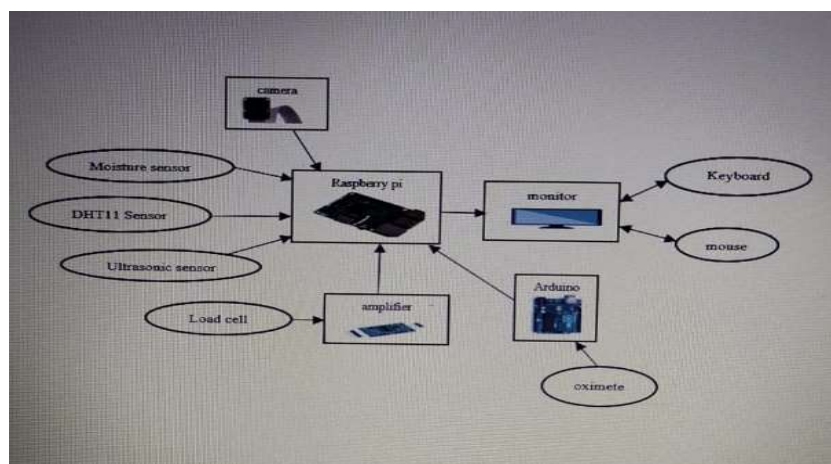

A. Proposed system Implementation
a. Start
b. System will be initialized
c. Connect the system with the internet (using your mobile hotspot)
d. Waiting for the command to receive from the new user/patient
e. The user/patient is asked to enter their primary information
f. Image of the user/patient is captured and Stored

g. The user/patient is asked to provide the input to the sensors
- By standing on the load cell and placing hand on the glove which has inbuilt sensor.
h. Performs the operations.
i. Provides the patient's report on the screen.
j. The patient/user will be asked for video conferencing.
k. If No, the system goes back to the initial state.
l. If Yes, the patient image and report is mailed to a well-known health provider and the video conferencing is established.
m. System gets back to the initial state.

3. RESULTS AND DISCUSSION
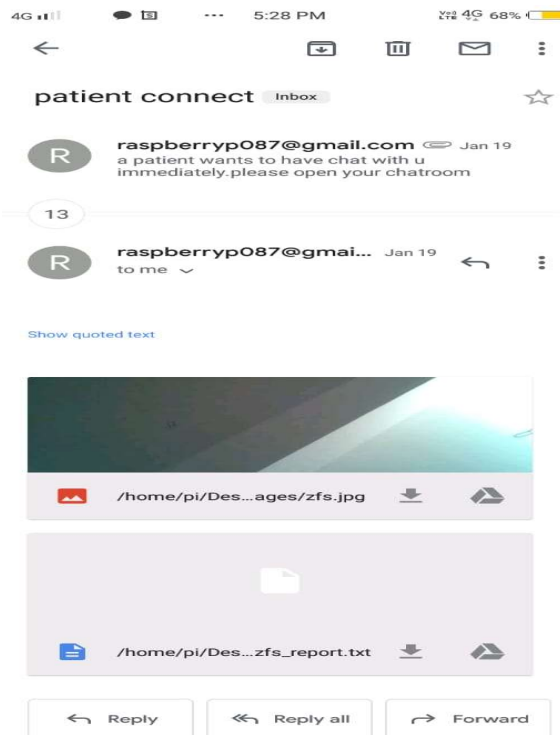
Img1: Image and report of the patient sent to the doctor through mail
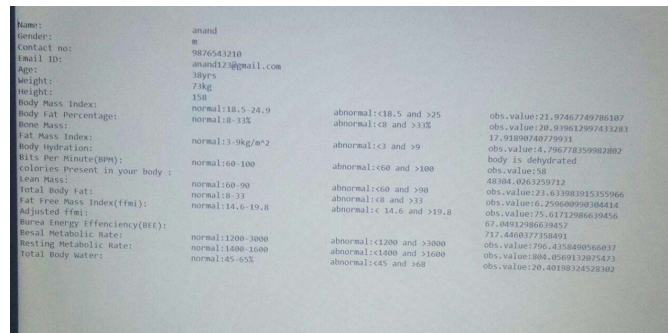
Img2: The generated report of the patient

4. CONCLUSION

The "PILOT PROJECT OF HEALTH TESTING MACHINE" is deployed and tested over a patient whose personal details are entered into the screen. The patient is connected with our health testing system which consists of a weighing machine, the oximeter, hydration sensors and a temperature sensor. The data received by the sensor on the database and report is generated for further analysis like video conferencing.

5. ACKNOWLEDGEMENTS

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