HYBRID MEDICINE DISPENSING ROBOT WITH PATIENT HEALTH MONITORING FOR COVID CENTERS

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Introduction:

In early 2020, a virus emerged that was spreading rapidly to several countries. The first case related to the virus was reported in Wuhan, Hubei Province. WHO named this disease the 2019 novel coronavirus (2019-nCoV), then changed its name to Coronavirus Disease (COVID-19) which was caused by the virus of Severe Acute Respiratory Syndrome Coronavirus-2 (SARS- Cov-2). This virus is zoonotic (a virus that is transmitted between animals and humans) and originates from bats. Besides, this virus can also be transmitted from humans to humans. Coronavirus can be transmitted either by air, direct contact, or indirectly. However, it is most commonly spread by droplets. Symptoms caused by this virus include the mild flu, namely a cold, sore throat, cough, fever, and difficulty breathing. In severe cases, Covid-19 can manifest as pneumonia. Patients can develop acute respiratory distress syndrome for a short time and diefrom multiple organ failure.

On November 17 2019 a new virus emerged which created a history. No one could ever imagine the virus attack would turn into Pandemic until declared by the World Health Organization (WHO) on March 11th 2020.A massive population has been victim all over the world. China was the first country with a widespread outbreak in January followed by other countries like Italy, USA and more. Today December 2020 nearly 71,462,822 confirmed cases and 1,601,628 deaths are recorded around the world.

One method to reduce covid-19 theme of our project is ,A temperature sensor measures the person body temperature and pulse oximeter measures percentage of oxygen in someone's blood. On a pulse oximeter, doctor will consider levels under 95% to below this will affect to breathing issues and effects the blood circulation caused by a COVID- 19 infection. The heart of our project is the automated pill dispenser, in this methodology we are using two modes like remote control and line following, Based on that the robot will monitor the patient and dispenses the tablet.

Objectives:

- To consider and meet the specified needs of people's health.
- The main objective of our proposed system is to create a user-friendly design that the patients can use as a remainder alert to take their daily medication on time.
- The main objective of this research work is to develop a **"**hybrid medicine dispensing robot with patient health monitoring for covid centers" system which acts as a diagnostic device that is programmable, multi-function designed to help doctors and nurses performing their jobs to the fullest and help patients recovering better.
- To provide accurate and reliable temperature monitoring.
- To limit the spread of COVID-19 infection.
- To have human less operation so as the Operators life is not at risk.
- To get accurate and fast results.
- To measure a person's body temperature.
- To build a prototype system for the automatic hand wash monitoring.
- Real-time health monitoring systems using IOT can help doctors prioritize patients, and provide urgent care to those who are in the most danger thereby saving lives.

Methodology:

In order to control the spread of the infection, this project aims to build a system of without human contact treatment for patients with efficient way. By using robotic methodology, we can treat the patients without human contact. System that senses the presence of hands and pumps sanitizer with the help of a DC motor. By using sensors the robot is monitoring the temperature and pulse of a patient. Based on the patient's condition the Robot will be dispensing the pills.

System is designed to help meet below requirements:

- Based on the mode commands the robot move towards the patients and treat as the below data.The system prompts the person to place his hand to get the sanitizer and thanks him.
- If the temperature is above 100 F then the system alerts by turning on the buzzer, and also if the pulse rate of a person will be below 90 pulses per minute.
- If the buzzer is ON, then immediately robot will dispense the pills to patient in respective manner. Finally robot makes the date base using google sheets and send to doctor being in patient ward.

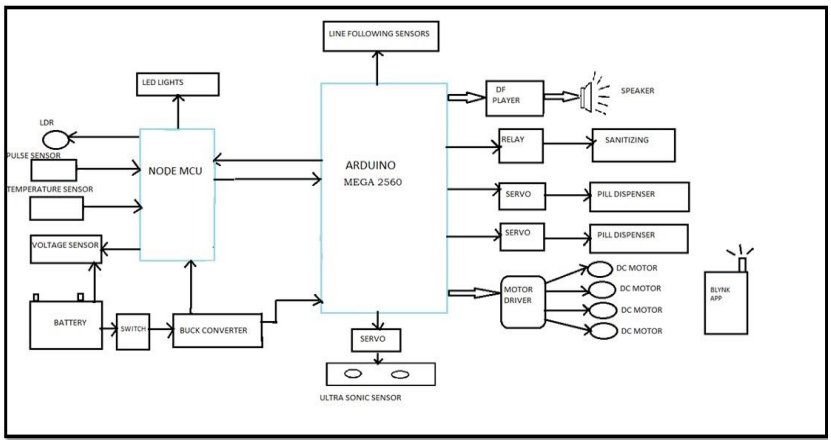

Fig: Block diagram

Experimental result and conclusion:

The robot waits in the initial position still the data received from the application.

The movement of the robot depends on two modes.

MODE 1:

Manual mode which process of robot will be controlled. With help of blynk app the robot will move towards the patient. The robot will sanitize the patient and monitor the temperature and pulse rate of the patient as well. Based on the condition of the patient robot will dispense the medicine and Database monitoring.

MODE 2:

Mode 2 is the automatic mode, It will same as mode 1 but it follow the line following command. By using Blynk app once give the command called “GO” the robot will perform the necessary actions. If the obstacles while moving robot it will alter the beep sound. Rest of all action as same mode 1

In this project hybrid medicine dispensing robot with patient health monitoring for COVID centre’s is as is best way to avoid COVID-19. A robotic medicine dispenser is very useful tool during pandemic situation, it will reduce the spreading. The ability of automated dispenser will be distributing the pills to patient without any human contact. It improves patient outcomes, lower cost and reduce the staff burden with data base monitoring. It was decided that since many hospitals have experienced the effects caused by COVID patient, a robotic medicine dispenser would prove to be a very useful tool. It improves patient outcomes and reduce the staff burden with database monitoring.

Scope of future work:

- With the implementation of new technologies, the robotic machines have become more effective and afford
- **“**Hybrid medicine dispensing robot with patient health monitoring for COVID centres” can take on tasks like helping patients to delivering medicine, and Robot acts as a interface between patient and doctor.

- In upcoming days could be implement Oxygen faciality to patients in emergency situation.
- Instead of beep alters can implement voice command.
- Can implement bed number system mode