Research Questions & Hypotheses

Module Name: Research Methods **Module Code:** 7COM1085

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Is that possible to apply computer science in the medical field to save patients' lives?

Context:

Internet of Things (IoT) can be used in the medical field to save many hearts attacked patient lives. Usually there is Electrocardiogram System to record the patient's heart pulse. Using IoT we can make it smarter and send alerts to the doctor wirelessly what the patient situation is on the bed.

Population:

We have many smart sensors to record the heart pulse of the patient. It is not possible to the doctor to check each patient condition, but it is possible with the IoT to send SMS alerts and live heart pulse of the patient to the doctor. There are many control systems can be used to send the data from one place to another place

Intervention:

We can record the heart pulse of the patient using Heart rate monitor (AD8232) board the patients live heart pulse can be transferred from one place to another place using Bluetooth (HC05) board this pulse can be viewed by the doctor on the mobile phone which is connected to the HC05. Using GSM module SMS alert can be sent to the doctor if the patient heartbeat fluctuated than normal beat so that the doctor knows that patient needs emergency medical treatment

Comparison:

The main task here is to send the heart pulse wirelessly. Previously there are many data transfer techniques used to send the data wirelessly using Bluetooth previously there is a project to send data wirelessly using this technique we are planning to do the same data transmission technique using Bluetooth.

Outcome:

In existing system there is no SMS alerting system used. Here we are going to add extra functionality to alert the doctor if the patient heartbeat fluctuates then the automatic SMS alerts will be send using GSM module. And cost wise is cheaper and more reliable.

Is that possible to alert the doctor when the patient get heart attack?

Population:

There is a mobile application which can connect with the Bluetooth (HC05) so that the doctor can view the heart pulse live on mobile phone. To send the SMS to the doctor we can use GSM module we can use one of the telecommunication carrier on attaching the sim to the GSM module. The doctors mobile number will be saved in to the program (code) so that the SMS will be directly send to the doctor's mobile phone.

Intervention:

Here we can use telecommunication technolology for communication via SMS and for the live pulse wireless transmission technology can be used with the Bluetooth (HC05). Here the data will be very secure because the data will only be transferred to the specified devices which are specified in the Programming (code).

Comparison:

Using the microcontroller arduino it is possible to connect many sensors for data transfer there will be many input and output ports for the microcontroller this board has been used for many data transmission techniques using different sensors. The code can be loaded into the microcontroller using Arduino IDE which is a platform to code and load the code into the microcontroller.

Outcome:

In many projects for data transmission they have used less frequency Bluetooth. But we are going to use high frequency Bluetooth for accurate and secure data transfer and compared to cost wise HC05 is very cheaper.