**Delloite Techno Utsav**

Round 2.3: Working Prototype

Team CGC\_Symbiotes

Kartik Chawla

Bhavya Jain

Manik Nagpal

Theme Alignment: Internet of Things

Industry Alignment: Life Sciences and Health Care

Patient Surveillance

There is a patient suffering from heart problem and has sought for an system that would be able to capture and monitor the changes in health parameters irrespective of time and location so as to provide for measures that will forestall abnormalities and cater for emergencies.

They need to continuously check the heart beat of patient in order to save the precious life one has got.

**ASSUMPTIONS:-**

Heart beat of the patient was normal but suddenly an alarm buzzes and a distress message would be sent when the critical threshold value of the heartbeat rate is exceeded. As soon as alarm buzzes the doctors reached the patient and provided the treatment.

**Code:**

Write a code to measure the heartbeat of the person and whenever there is fluctuation in the heart beat the the distress message should be sent to the doctor and nurse station as soon as there is change.

#include <iostream>

using namespace std;

bool heartRate (int, double);

int main()

{

int age;

double heartbeatsMinute;

bool targetHeartRate;

cout << "What is your age? ";

cin >> age;

while (age > 0) // loop while age is not entered negative

{

cout << "How many heartbeats did you count in a minute? ";

cin >> heartbeatsMinute;

targetHeartRate = heartRate(age, heartbeatsMinute);

if (targetHeartRate == true) // if heart rate is true

{

cout << "You are within your target heart range.\n";

cout << "Enter another age. ";

cin >> age;

}

else

{

cout <<"You are not within your target heart range.\n";

cout <<"Enter another age. ";

cin >> age;

}

}

return 0;

}

// heartRate function

bool heartRate(int age, double heartbeatsMinute)

{

const double targetPercent = .65; // percent between 60 & 70

const int num = 220;

double targetRate;

targetRate = ((num - age)\*targetPercent); // formula to find target rate

if (heartbeatsMinute <= targetRate) // if the heart beats entered are less or equal to target rate

{

return true;

}

else

{

return false;

}

}

// The main executable code is sent in another file.

**TEST CASES :-**

**1.**

When the user enters a 33 for age and a 110 for heartbeat, the program should return as "you are not within your target heart range." And the distress message will be sent to the doctor and the nurse staff.

**2.**

When the user enters a 33 for age and a 60 for heartbeat, the program should return as "you are within your target heart range." and the person is safe.