

IoT Health Monitoring Device

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Abstract

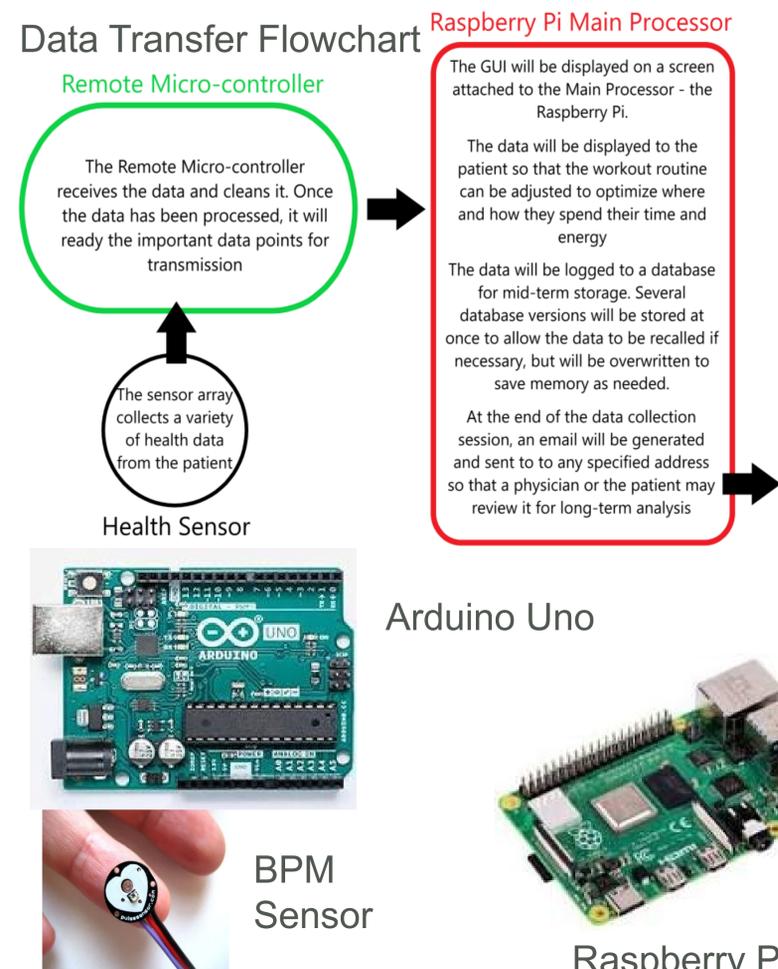
There is currently a deficit of advanced healthcare to patients who do not have access to typical medical systems. This issue calls for the need of a personal use IoT-based medical device that could be used at home by the user while also sending information back to the doctor. A device that could provide real-time health data would be extremely beneficial to a wide range of patients. Especially with our current world dealing with the Covid-19 pandemic, it is more important than ever that people can carry out their daily tasks as remotely as possible. This device would be able to provide a safe and effective way for patients to continue making sure that their overall health remains stable.

Introduction

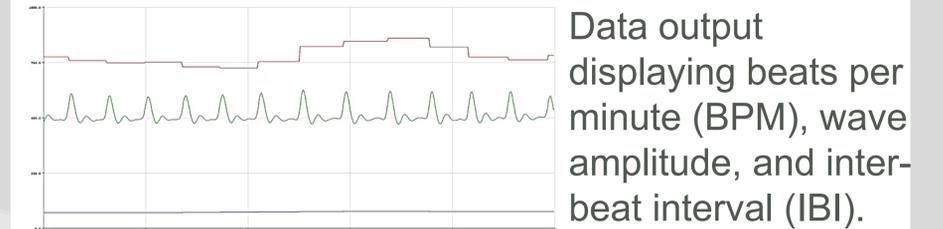
Main Objectives for Project

1. Establishing data communication between health monitoring sensors and the Raspberry Pi 4 (Rpi).
2. Creation of a Graphic User Interface (GUI) that displays received data to the user.
3. Creating a database for data storage within the Rpi.
4. Setting up data transfer capabilities between the Raspberry Pi and the "Doctor" via the internet.
5. Designing a compact case for the device that allows for easy maintenance and dissipates heat.

Methods and Materials



Results Cont.



Conclusions

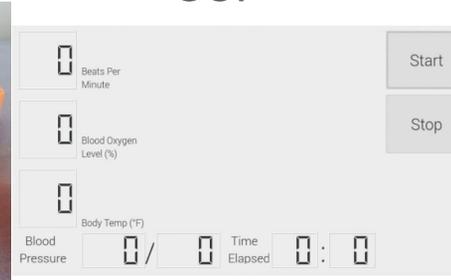
Live data from the pulse monitoring sensor was able to be transferred from the Arduino microcontroller to the Rpi. The data is then able to be displayed on the GUI and simultaneously sent to the database. Once the database has received all the data for the session, that database file is sent to any designated location via the internet. This data flow can be extended to other sensors. The way the process was structured would allow for future sensors to be added in the future depending on the patient's need. In addition, the current process uses serial communication between the Arduino and the Rpi. This communication may be able to be setup as a Bluetooth connection in the future.

Results

Prototype Case Design



GUI



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