



Human Heart Rate Detection With Web Monitoring

Ritzkal¹, Bayu Adhi Prakosa², Rendi Juhar Maulana³

Ibn Khaldun University

E-mail: ritzkal@ft.uika-bogor.ac.id

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ABSTRACT

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Monitoring heart rate and body temperature is one of the tools to find out information on body health, especially heart conditions and body temperature. There are still some health places that still use the manual method of monitoring heart rate and body temperature, especially general practitioners' practices. By using the Hardware Pulse sensor and the Ds18b20 as a microcontroller, it is easier for us to find out information about heart rate and body temperature that can be viewed digitally. This monitoring makes it easier for doctors to get information about heart rate and body temperature as a follow-up material for doctor's examinations which can be viewed via the LCD on the device and the WEB with the help of Ethernet Shield as a system tool to connect to the internet network. With a heart rate and body temperature monitoring device, you can find out the condition of your heart and body temperature "Low, Normal, and High". By utilizing the Arduino Uno microcontroller as the main electronic data receiver to process data previously data through the Pulse sensor as input for heart rate data and the Ds18b20 as input for body temperature data which will then be displayed on the LCD and WEB, in order to make it easier to get information on the patient's heart rate and body temperature. efficiently and effectively.

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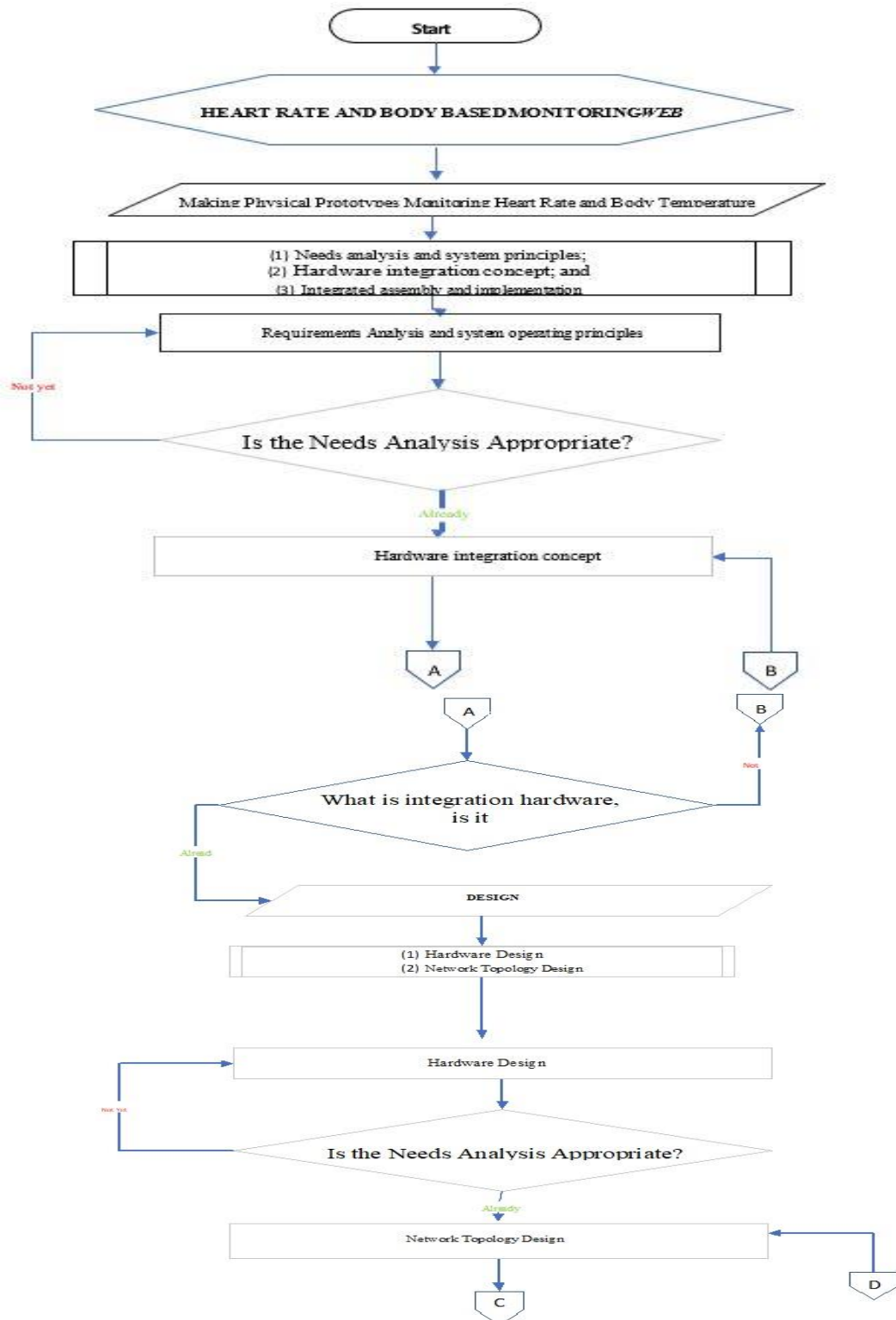
1. Introduction

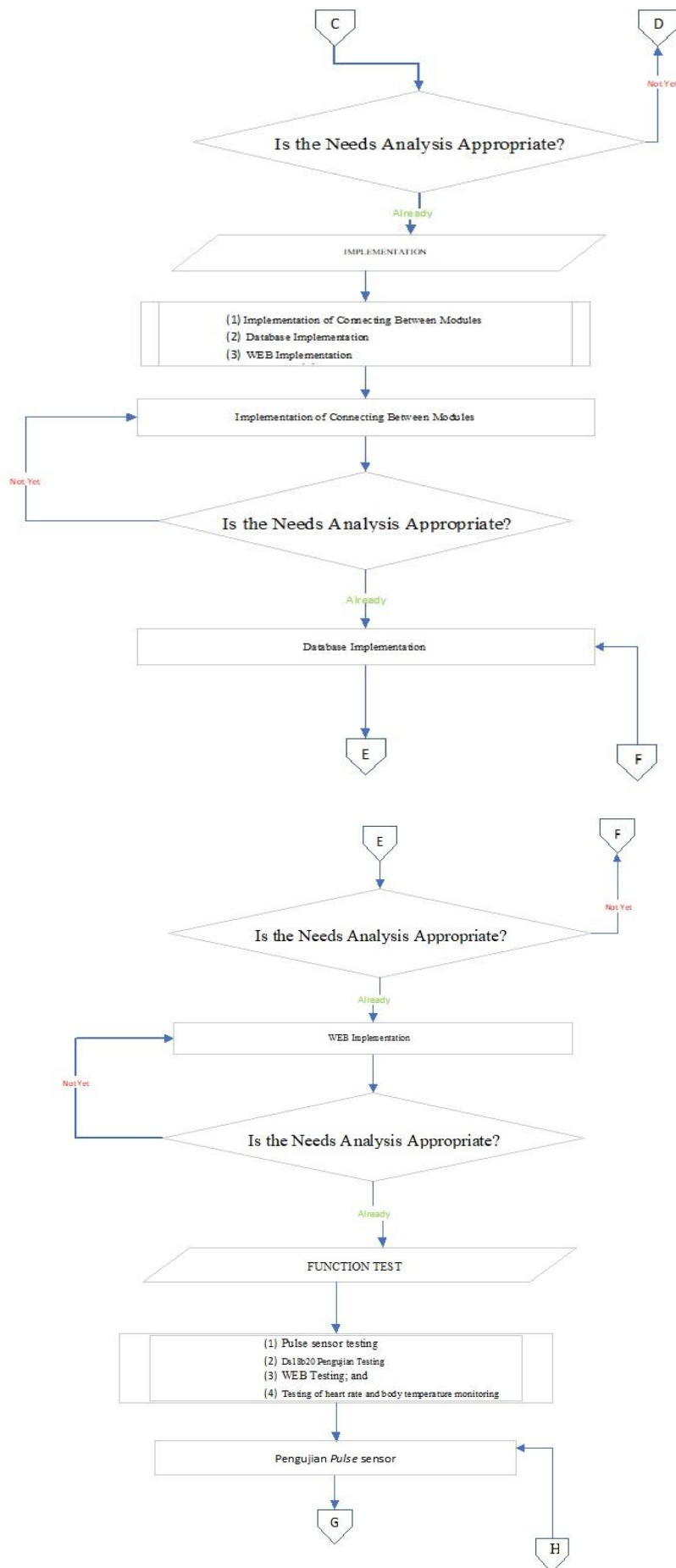
Health is the most important part that must be maintained for everyone, at body temperature one of the references to detect health in the body, low body temperature can affect immunity in the human body [1], especially in heart disease it is very important to detect body temperature to maintain The body's immunity is maintained, according to the WHO, 30% of deaths in Indonesia caused by coronary heart disease are not routinely checked for body temperature and cardiologists in Indonesia are routinely carried out. According to WHO data, coronary heart disease ranks first to cause death in Indonesia (WHO, 2011) [2], therefore a system for detecting body and heart temperature is needed so that it can help detect body and heart temperature [3]. With the development of Microcontroller technology, especially Arduino which is based on open source with the help of web-based applications using the PHP programming language [4]-[12]. The microcontroller in the monitoring system is an Arduino Uno R3 module [5] with programming based on the Arduino Integrated Development Environment (IDE) [6]-[10] the programming language used is based on C/C++[7]. Using a heart rate monitoring sensor Pulse sensor [8], as a parameter that shows the condition of the heart [9]. and the Ds18b20 sensor is intended to determine body temperature conditions . With the use of microcontroller electronics it has several benefits, namely (i) information about the status of heart conditions and body temperature and (ii) web-based output (Word Elektrik Browser) [8]-[11]. The formulation of the problem in this study is How to display information on a person's heart health condition and body temperature so that they can assist doctors in taking materials for further examination?. The purpose of this study is to be able to display information on the health condition of the heart rate and body temperature on tools and the web so that it can assist doctors in obtaining information on heart conditions and body temperature for further examination materials.



2. Research Method

The research method is the steps for achieving the research objectives through problem boundaries. Research method flowchart.





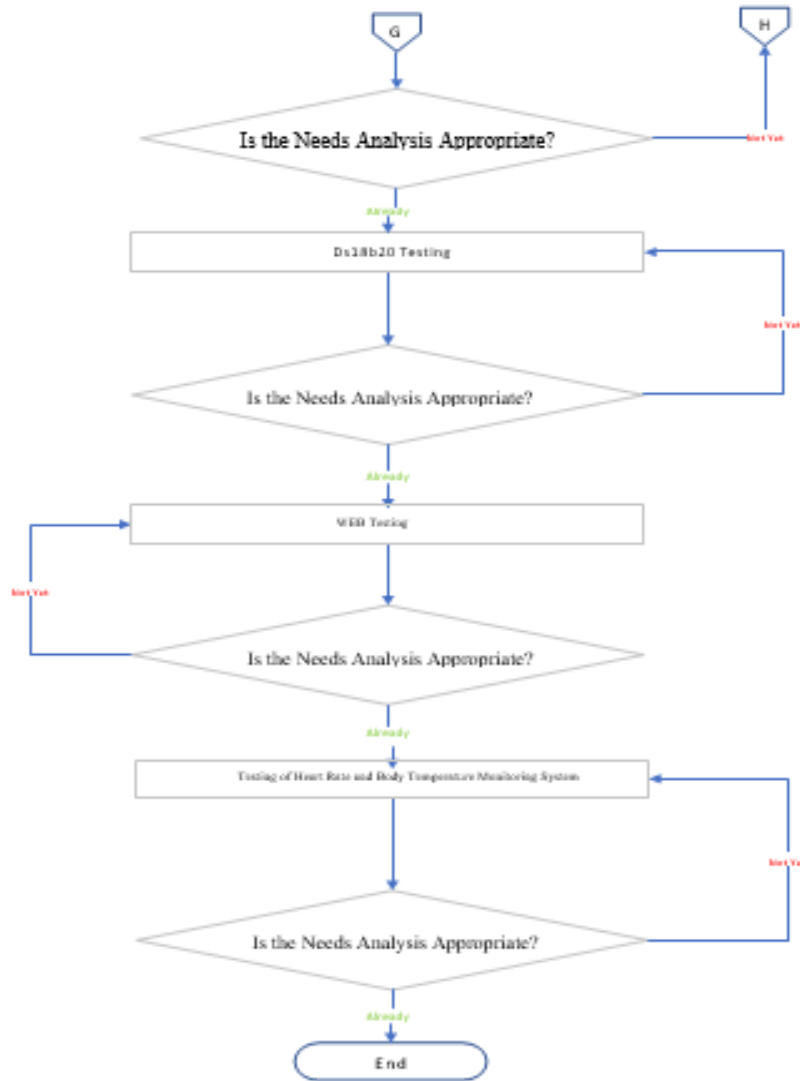


Figure 1. Research Method

3. Result and Analysis

3.1 Identification of Web-Based Heart rate and Body Temperature monitoring system

a. System Operating Principle

The principle of operation is explained through the direction of the sequence in the Heart Health and Body Temperature monitoring system. Schematic diagram of the operating principle of the system.

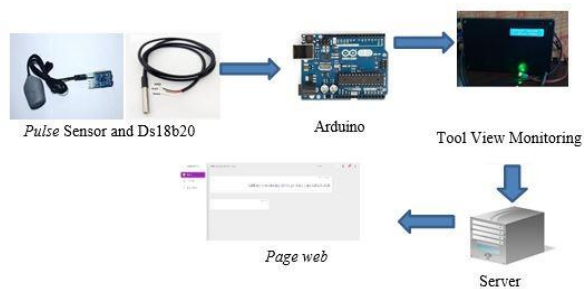


Fig 2. Schematic diagram of the operating principle of the system

The way the system works in this study starts from the Pulse sensor and the Ds18b20. When the Pulse Sensor monitors Heart Rate in minutes BPM (Beats Per Minutes) and the Ds18b20 sensor monitors Body Temperature based on Celsius, then the Pulse sensor and Ds18b20 module will send data to the Arduino Uno and Ethernet Shield for processing the data that has been obtained on the pulse sensor. and the Ds18b20 sensor, the source code that has been created will be stored on the server with program instructions, the server will communicate with the web of course with the source code that has been made according to the instructions and the final stage provides information on the results of monitoring Heart Rate and Body Temperature into the web. of paper, enlarged versions of the tables and figures that appear in your document. These are the images that we will scan and publish with your paper.

b. Hardware integration concept

The hardware integration stage is conceptualized by sequencing each electronic device that composes the Heart and Body Temperature Monitoring system to determine heart rate and body temperature in minutes. Block diagram of the integration of electronic devices for the establishment of a Heart rate and Body Temperature monitoring device.

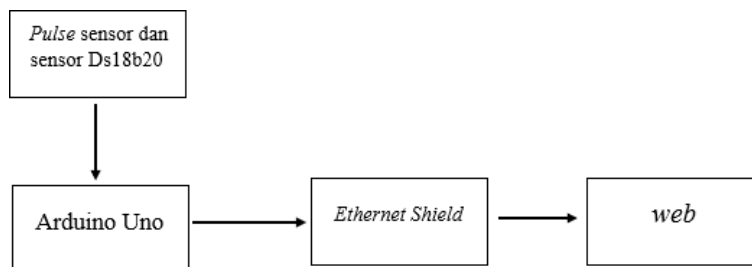


Fig 3. Block diagram of the integration of electronic devices for the establishment of monitoring Heart Rate and Body Temperature 1

That a number of electronic modules are needed in the manufacture of Heart Rate and Body Temperature Monitoring system tools, namely Pulse Sensor, Ds18b20 Sensor, Arduino Uno, and i2c lcd to display results on the device.

3.2 Design

a. Integrated assembly and network utilization.

In the integration assembly and network utilization, there is a block diagram of the integration of electronic devices for the establishment of a web-based Heart Rate and Body temperature monitoring system.

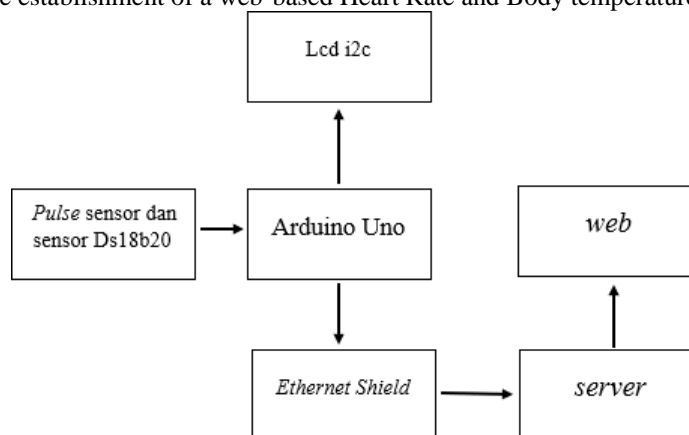


Fig 4. Microcontroller device integration block diagram for the establishment of a web-based Heart Rate and Body Temperature Monitoring system.

b. Implementation

At the implementation stage, namely the assembly or installation of all components carried out previously, they were implemented in the real system. The following are the stages of implementation which will be explained through the flowchart image as follows:

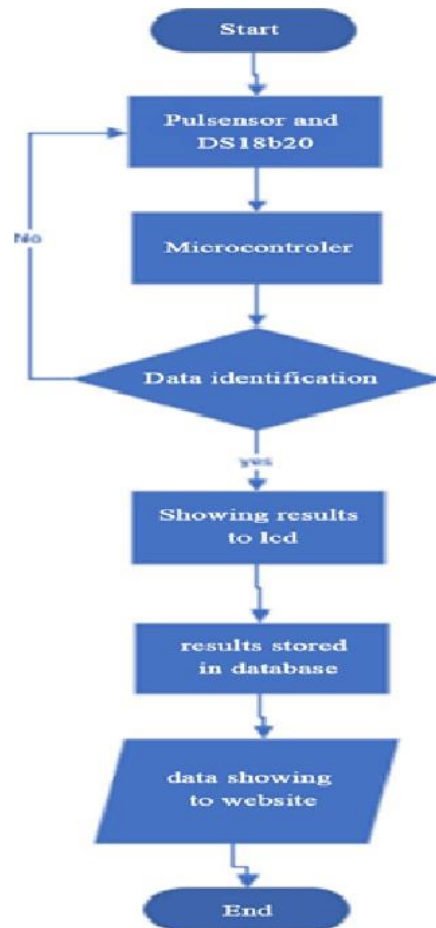


Fig 5. Flowchart of how the system works

3.3 Web application for monitoring Heart Rate and Body Temperature.

Web for monitoring (web monitoring) is used on personal computers for making applications as a monitoring and control system.

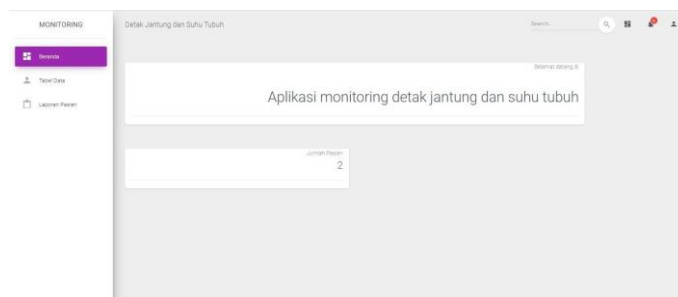


Fig 6. Web Monitoring

After making web monitoring on the Visual Studio application with Programming Language (.php), then Localhost is entered in the browser that has been obtained from the Xampp database. Display of the Localhost entry process in a browser application on a personal computer

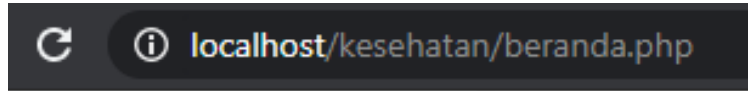


Fig 7. Display the process of entering the Localhost address on a browser on a personal computer

That the process of entering the Localhost address in the browser application on the personal computer has been successful. The next result is the opening of the web page display in the Browser application. Display the results of the installation of a web-based monitoring application.

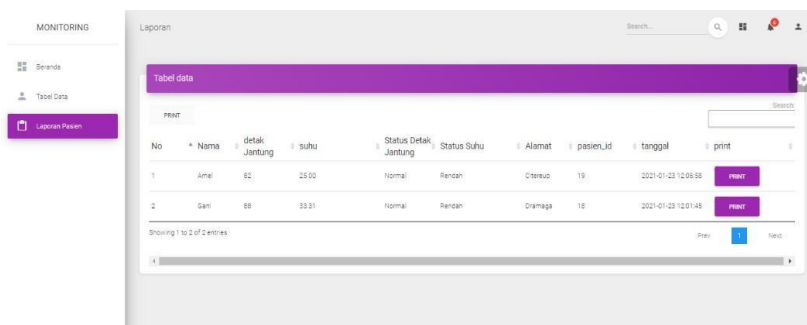


Fig 8. Web display of Heart Rate and Body Temperature monitoring results

That the Heart Rate and Body Temperature monitoring web display has status criteria namely: (i) Heart Rate and Temperature Heart rate and body temperature status, (ii) Heart rate status will display information on heart rate status with the criteria "Low, Normal, and High" according to the heart rate sensor data input, (iii) the temperature status will display information with the criteria "Low, Normal, and High" according to the temperature sensor data input.

4. Conclusion

Based on the discussion of the results of this study, several conclusions were obtained as follows: A physical design has been made and implemented a web-based heart rate and body temperature monitoring tool by inserting the fingers into the Pulse sensor and the Ds18b20 sensor on the elbow, After that it will provide information on the i2c LCD as well as providing information on heart conditions and body temperature on the web and Obtaining information on the condition of heart rate and body temperature to be able to assist in taking materials for further medical examinations.

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