CAMERA BASED HEART RATE DETECTOR

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Abstract: - Steady advances in wireless technology, medical sensors and interoperability of software create exciting ways in improving the ways in which we provide emergency care. Nowadays Healthcare Atmosphere has developed technology oriented. People are facing many problems of unpredictable death due to the cause of heart attack, which is because of the absence of medical care to patients at the right time.

Technological innovations in the field of disease prevention and maintenance of patient health have enabled the evolution of fields such as monitoring systems. This concept deals with the detection of heart attack and heart rate monitoring. It is an android application which continuously monitors the patient's heart beat rate. This project can help save the lives of patients in the nick time.

I. INTRODUCTION

Recent developments in wireless technology, medical sensors, and software interoperability have opened up exciting possibilities for improving emergency care. In today's healthcare environment, technology plays a crucial role in providing better patient outcomes. One of the biggest challenges facing medical professionals is the unpredictable nature of heart attacks, which often result in sudden deaths due to a lack of timely medical attention. Fortunately, technological advancements in disease prevention and patient health monitoring have led to the evolution of innovative monitoring systems. This concept revolves around detecting heart attacks and monitoring heart rates using an Android application that continuously measures the patient's heart rate and displays the exact reading to the users.

By providing continuous heart rate monitoring, this project can help save lives by preventing fatal outcomes. Additionally, it is important to note that most applications can accurately capture heart rate readings under various body conditions, including normal activity and waking up after sleep.

Overall, the integration of technology into the healthcare industry has been instrumental in providing more effective, efficient, and accessible medical care. With innovative solutions such as heart rate monitoring systems, we can expect to see a significant improvement in patient outcomes, ultimately contributing to a healthier population.

II. EXISTING SYSTEM

Although wrist watches that detect heart rate are available, they may not always be effective in emergency situations. If a person is in an accident and is unable to move, it can be difficult to check their heart rate using a wrist watch or any other wearable device. Moreover, these devices are not always worn by people, and their accuracy may vary depending on the situation. Furthermore, they may not be able to detect heart rate accurately in all locations, making them unreliable in certain situations.

In light of these limitations, the development of an app that detects heart rate using a mobile phone can be an innovative solution. Unlike wrist watches and other wearable devices, most people carry their mobile phones with them at all times, making it easy to detect their heart rate anywhere and at any time. Furthermore, with the use of sensors and flash, the app can accurately measure the pulse rate within just 10 seconds, making it an effective tool for detecting heart rate in emergency situations. Overall, the development of this app can help to save lives and prevent deaths caused by neglected heart attacks.

III. PROPOSED SYSTEM

To overcome those drawbacks of the existing system, we proposed a system, the College Project Management system. Our project can be a lifesaver in such critical situations where every second counts. With the heart rate monitoring app installed on their mobile phones, people can easily check the heart rate of the patient in case of an emergency. The app can be used by anyone and does not require any special training or equipment. As mobile phones are always with people, they can act as a reliable tool to detect the heart rate of a person at any time and any place. By using this app, people can take immediate action and report the heart rate to the ambulance, which can help the medical team to take necessary action and provide the required medical attention. This project can help in saving precious lives by providing an accurate and reliable heart rate monitoring system, which can be accessed by anyone with a mobilephone.

IV. RELATED WORK

As per our research regarding the proposed system, some paper consists of a similar idea to ours. In many papers, they designed the application in such a way that users must login to the app, but in our app, the patients and users do not need to login to the app every time they need to use it or during emergencies.

V. SYSTEM DESIGN

Data Flow Diagram:

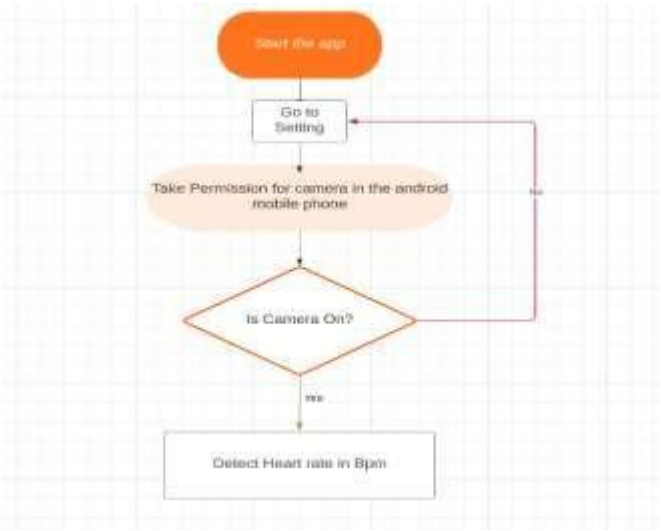


Figure 2: Data Flow Diagram

The above diagram is showing the flow of how the heart rate Monitor App works.
How it works:-

- We need to open the app
- Go to setting and take Camera permissions
- Now check whether the camera is on or not
- If camera is on then the app starts detecting the heart rate
- If the Camera is not on then patient or user needs to take permissions to on the camera.

VI. TECHNOLOGIES USED

For API Testing: The implementation stage is a crucial phase in the project life cycle, where the actual project begins to take shape. This is the stage where the project team puts all the planning and preparation into action. It involves installing the software or implementing the app modifications that have been developed and tested during the previous phases. The implementation stage is initiated once the app has been fully tested and accepted by the user, typically through a formal acceptance process.

Once the app has been accepted, it is ready to be installed and made operational in a production environment. During the implementation phase, the project team works closely with the end-users to ensure that the app is installed correctly and meets their requirements.

This often involves training end- users on how to use the new app and resolving any issues or bugs that arise during the installation process. The implementation phase continues until the app is fully operational in accordance with the defined user requirements. This may involve several iterations of testing, tweaking, and re-installing the app until it meets the user's expectations.

Successful implementation of a project requires careful planning and execution of the implementation process. This includes developing a detailed implementation plan that outlinesthe steps, resources, and timelines required for the installation of the app.

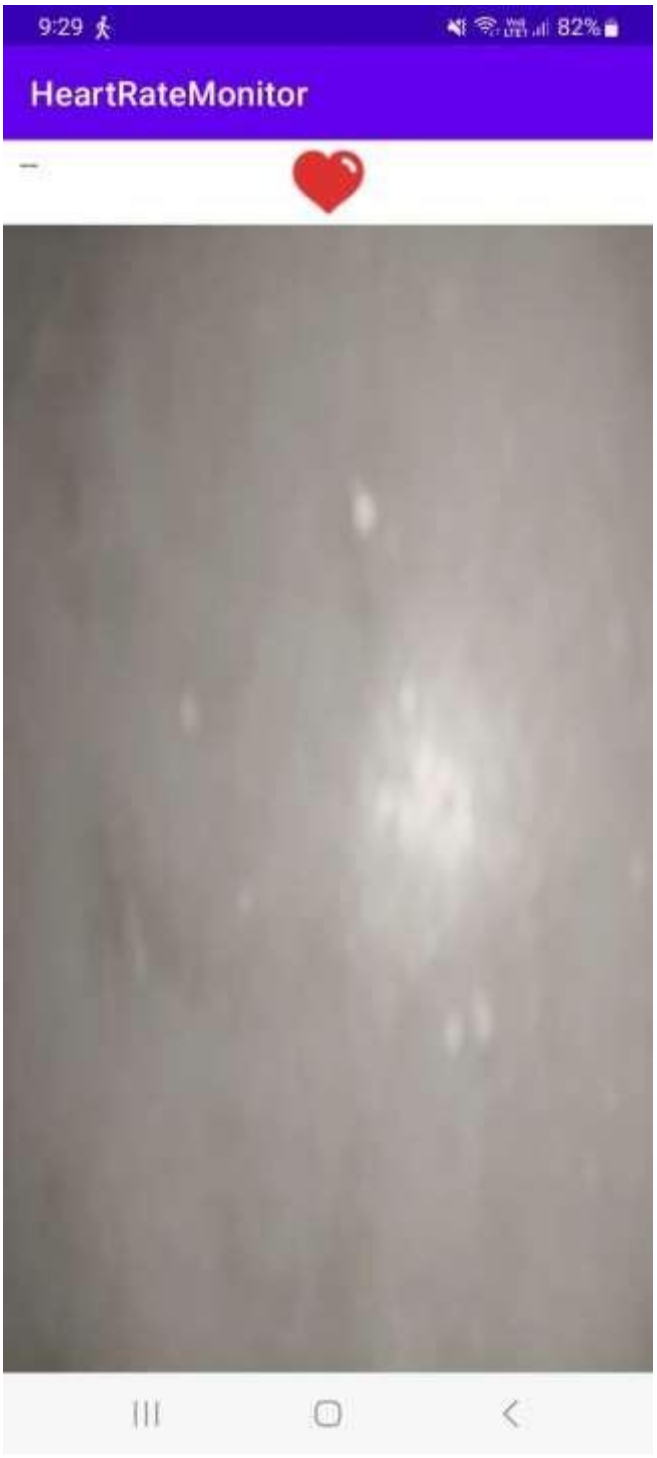
Additionally, it involves identifying and mitigating potential risks and issues that may arise during the installation process. In summary, the implementation stage of a project is a critical phase that involves installing the app or app modifications in a production environment. It requires careful planning, execution, and collaboration with end-users to ensure that the system meets their requirements and operates successfully.

VII. RESULT/OUTPUT SCREENSHOTS

- When the app is installed on an android mobile phone.

Screenshot 1: Heart rate Monitoring App

- When the app is started to function and when the fingertip is not placed on the camera.



Screenshot 2: Camera with heart rate detector page

- When the index finger is placed on the camera and the with the help of flash the heart rate is detected.

Screenshot 3: After Heart rate Detection

VIII. CONCLUSION

Heart rate monitoring is an important aspect of healthcare, and the development of an Android application that measures heart rate in about 10 seconds is a significant breakthrough. This application has been optimized for Samsung smartphones and provides favorable accuracy. With the ability to detect heart rate live by using the camera and flash, this app is not only convenient but also eliminates the need for extra outside sensors.

This makes it easy for people to monitor their heart rate at any time, anywhere.One of the key benefits of this application is that it can be used during emergency times. In case of a medical emergency, the app can provide quick and accurate heart rate readings, which can help healthcare professionals to make timely and informed decisions. This can potentially save lives and improve patient outcomes.

Moreover, the app can also be used by athletes and fitness enthusiasts to monitor their heart rate during workouts and training sessions. This can help them to optimize their training and achieve better results.

Overall, the development of this heart rate monitoring application for Samsung smartphones is a significant step forward in healthcare technology. With its convenience, accuracy, and potential life-saving benefits, this app has the potential to revolutionize the way we monitor and manage our heart.

IX. FUTURE SCOPE

- Camera-based heart rate detectors can be utilized in telemedicine applications, allowing healthcare professionals to remotely monitor patients' heart rates in real-time.
- This could be particularly useful for remote patient monitoring or for individuals with chronic conditions who require continuous heart rate tracking.
- Camera-based heart rate detectors can be integrated into vehicles to monitor the heart rate of the driver.
- By detecting signs of fatigue or drowsiness, the system could issue alerts or trigger safety measures, such as adjusting the seat position or activating driver-assist features, to prevent accidents caused by driver inattention.

X. REFERENCES

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