Hardware System Monitoring

# Project Concept

## 

## Abstract:

## Hardware monitoring system is a system monitoring app which will be used for tracking of hardware system components such as CPU voltages, fans speed, Core temperature, system hardware detection, CPU load. In addition to that suggestion of better components than the current component is a feature, also CPU related latest news, Gaming related GPU news are some of the features .

## Objectives:

## Main objectives of Hardware monitoring system are:

1. To retrieve values of CPU fans speed which helps in understanding RPM of fans and also it helps to identify if fans are working properly or not.

1. To detect CPU core temperature because when CPU’s too hot it can cause considerable damage to your device. It’s good practice to periodically check your CPU temp to ensure you aren’t inflicting any unnecessary harm on your device.
2. To keep a tab on voltages, it determines the amount of voltage your CPU needs to maintain stability at the default clock speeds.
3. System Hardware detections which helps in identifying details of

CPU, Ram, GPU.

1. Suggestions on better hardware components than that of current one in use.
2. Providing latest and exclusive news related to new upcoming technology

## 3. Literature Review:

Hardware monitoring approaches have successfully been applied in many software engineering tasks, particularly in program profiling, dynamic optimization, and software testing. While advances have been made in improving the efficiency of using instrumentation for program execution monitoring, research has revealed that the use of hardware mechanisms can eliminate or drastically reduce the need for instrumentation. The key trade-off in balancing hardware monitoring and instrumentation use is between the efficiency needed for the approach and the amount and type of observations that must be made. The research presented in this chapter demonstrates how hardware monitoring has been used successfully in balancing these trade-offs in software engineering tasks.

Finally, the efficiency and applicability of hardware monitoring approaches may be improved as the hardware, OS tools, and user level tools continue to develop. Although hardware monitoring research currently focuses on applications executing on commodity machines, their use may potentially aid in testing, debugging, use analysis and application analysis on mobile devices and embedded systems as well.

## 4. Problem Definition:

* Currently there is a lack of user-friendly and centralized hardware monitoring tools.
* The existing tools are very unintuitive and built for network professional and not for home users or hobbyists with a single machine.
* Tools that take time to fully learn and utilize all features in the platform.
* Paid Apps and some of the essential feature are not available in free trials.
* User interface can feel crowded and not understandable to layman users.
* Open-source version lacks paid support options, reliant on community for bug fixes.

## 5. Scope:

1. monitoring tools and software that you can use to monitor how well your computer is performing while gaming and display all of the most important stastics on your screen without forcing you to tab away to some other window to view a report. Some you can download for free, while you may already have some installed without even knowing it.
2. Using tools like these, can make a massive difference not just to your gameplay, but to how well your computer runs in general. Regardless of what you want to monitor, there is almost certainly a solution out there that is right for you. The software we have mentioned here, is probably a good place to start but is by no means a comprehensive list.

## Technology Stack:

## 1. Html / CSS / js

## 2. Tailwind

## Node js

1. Electron

## 7. Benefits for environment and society:

1. Increase Customer Satisfaction

Happier customers attract others, and they usually become a brand-loyal, long-term users of an app. The baseline objective is to have fewer bugs and crashes, so we can provide a platform which makes our users content.

2. Improve End-User Experience

A fast and responsive software is the basis of UX, and application performance monitoring software can help you identify any related issues.

3. Reduce Downtime

If 1% of 1 million customers can’t connect, that’s 10K unhappy users, which we can avoid if we proactively monitor app performance and reduce downtime.

4. Become More Objective

Use data to drive decisions on what needs to be fixed first. Backlog prioritization should be driven by data, instead of a hunch. Using an APM software can guide you to prioritize based on what’s important for your users, so you can improve user experience and customer satisfaction.

5. Improve Your Google Ranking

In short, it’s hard to get noticed, and visibility is one of the key component to grow. With this in mind, by improving your app performance, automatically you improve your Google ranking as well, which will lead you to a higher visibility on the market.

6. Advance Productivity

In order to improve your development team productivity you need to get to the route cause of what is causing longer cycle times in the development process. Try to proactively spot bugs and issues with proper testing, reduce unnecessary meetings, and prioritize improvements which hold value add to your users..

7. Speed Up Innovation

Obviously, reducing the time needed to fix bugs, problems frees up more time for your software engineering team to work on adding new features to the app.

8. Cut Down Costs on Experts

APM software provides you insights to identify the problem, define the remedy, as a result your senior team can focus on implementing a solution, instead of spending days on investigation.

9. Lower Operating Costs

The more efficient your team is working, the less it costs you to develop and maintain your application.

10. Boost Sales and Revenue

As a result of higher customer satisfaction and better visibility we can achieve increasing user growth, which can result in higher income. On the other hand, better team performance might reduce our operating costs. Overall, APM software supports you to become more competitive and profitable on the market.