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# An Extensible Software Infrastructure for Computer Aided Custom Monitoring of Patients in Smart Homes

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**Abstract :** This paper describes the trade-offs and the design from scratch of a self-contained, easy-to-use health dashboard software system that provides customizable data tracking for patients in smart homes. The system is made up of different software modules and comprises a front-end and a back-end component. Built with HTML, CSS, and JavaScript, the front-end allows adding users, logging into the system, selecting metrics, and specifying health goals. The back-end consists of a NoSQL Mongo database, a Python script, and a SimpleHTTPServer written in Python. The database stores user profiles and health data in JSON format. The Python script makes use of the PyMongo driver library to query the database and displays formatted data as a daily snapshot of user health metrics against target goals. Any number of standard and custom metrics can be added to the system, and corresponding health data can be fed automatically, via sensor APIs or manually, as text or picture data files. A real-time METAR request API permits correlating weather data with patient health, and an advanced query system is implemented to allow trend analysis of selected health metrics over custom time intervals. Available on the GitHub repository system, the project is free to use for academic purposes of learning and experimenting, or practical purposes by building on it.

**Keywords :** flask, Java, JavaScript, health monitoring, long-term care, Mongo, Python, smart home, software engineering, webserver
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