

## **Project Proposal**

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### Proposal 2: Intelligent Home Energy Monitoring System

Our project aims to design and implement an intelligent home energy monitoring system that allows users to track and analyze energy consumption at the device level. The system will simulate data from IoT devices or use real sensor inputs to capture electricity usage patterns, storing the results in a centralized database. A user-friendly dashboard will provide clear visualizations of historical and real-time consumption, empowering users to make data-driven decisions that can lower utility bills and improve energy efficiency.

To enhance the utility of the system, we will integrate machine learning algorithms to detect anomalies, such as unusual energy spikes or potentially faulty devices. This feature will not only help reduce costs but also improve safety and reliability in managing energy consumption. The system will be built with scalability in mind, offering a foundation for future integration with smart home devices. Deliverables will include system design documentation, source code, database schema, ML model reports, and a deployed dashboard accessible to end users.