Smart Sage: IoT-Driven Home Automation Framework with Predictive Machine Learning

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Objectives

- Establishing proper management of unplanned power flows to address power shortages.
- Analyzing historical data and predicting future patterns using machine learning algorithms will help ensure sustainable energy use.
- To Integrate energy consumption data and predictive analytics to optimize energy usage, reducing utility costs and environmental impact.
- Designing the framework to be scalable and adaptable to accommodate future technological advancements and expansion of the IoT ecosystem.

Related Works

- S. Mahmud, S. Ahmed, and K. Shikder [1] developed a smart low cost home automation system with a metering system using IOT for user-controlled and monitored electronic devices.

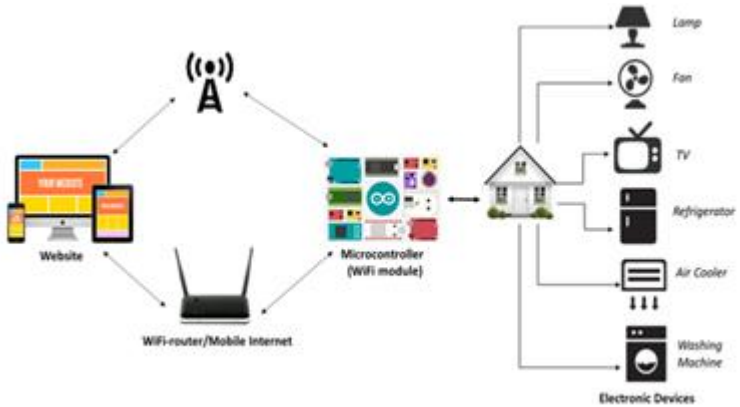

Fig 1: System Architecture

Fig 2: Website Image for Smart Home

Related Works

- A portable wifi, low-cost, and user-friendly IOT-based home automation system was proposed by Jabbar, W. A., Kian, T. K., Ramli, R. M., Zubir, S. N., Zamrizaman, N. S. M., Balfaqih, M., Alharbi, S [2]

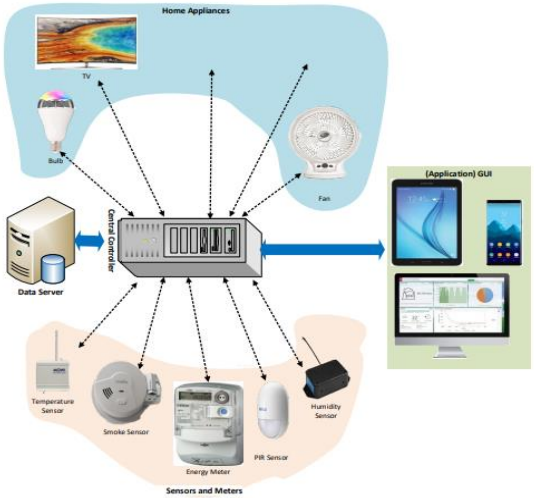

Fig: SH environment.

Related Works

- An android application was connected with the control system through Wi-Fi across a cloud network. To fight the rising costs of electricity bills and the scarcity of resources type of system was implemented by T. Dhanush, B. Aswin Ramnath, M. Krishnakanth, and N. Bhalaji [3]

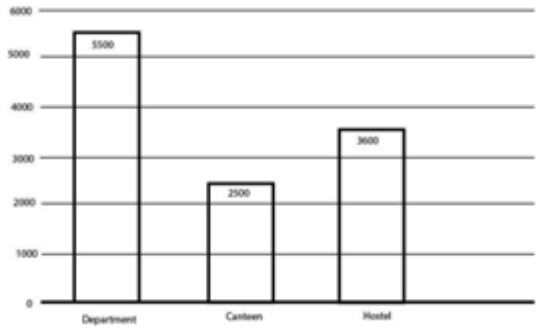

Fig 1: Energy wasted

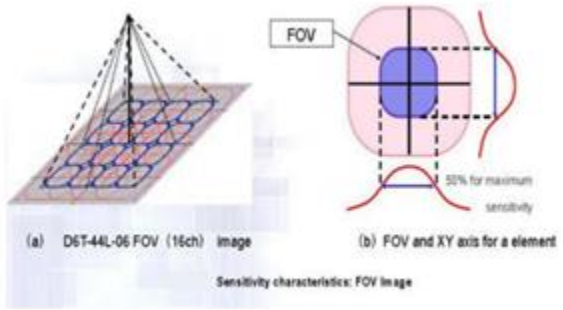

Fig 2: FOV image

Methodologies

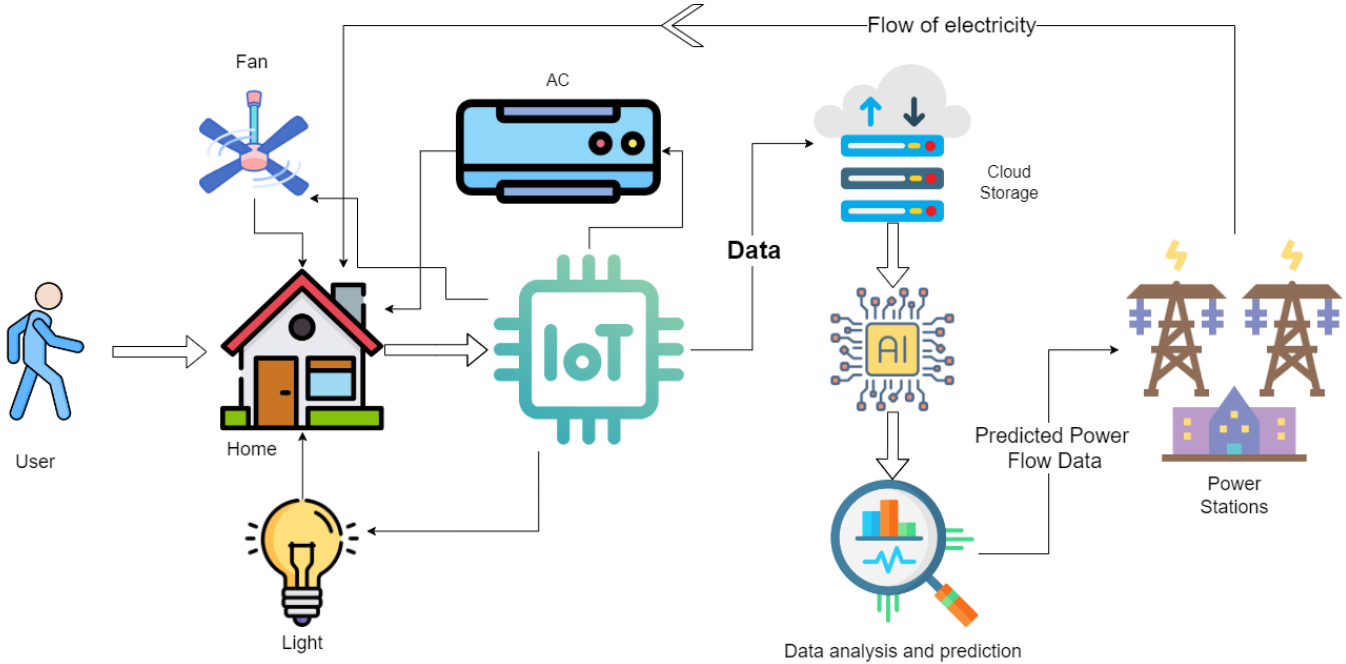

Fig: IoT-Driven Home Automation Future Predictive Proposed Framework

Reference

[1] Mahmud, S., Ahmed, S. and Shikder, K., 2019, January. A smart home automation and metering system using internet of things (IoT). In 2019 International Conference on Robotics, Electrical and Signal Processing Techniques (ICREST) (pp. 451-454). IEEE.

[2] Jabbar, W.A., Kian, T.K., Ramli, R.M., Zubir, S.N., Zamrizaman, N.S., Balfaqih, M., Shepelev, V. and Alharbi, S., 2019. Design and fabrication of smart home with Internet of Things enabled automation system. IEEE Access, 7, pp.144059-144074.

[3] Dhanush, T., Ramnath, B.A., Krishnakanth, M. and Bhalaji, N., 2018, July. Smart Rooms Automation System by Thermal Sensing. In 2018 International Conference on Inventive Research in Computing Applications (ICIRCA) (pp. 596-600). IEEE.

Thanks