**IoT based Smart Home Design using Power and Security Management**

**Abstract**

The paper presents the design and implementation of an Ethernet-based Smart Home intelligent system for monitoring the electrical energy consumption based upon the real time tracking of the devices at home an INTEL GALILEO 2ND generation development board, which can be used in homes and societies. The proposed system works on real time monitoring and voice control, so that the electrical devices and switches can be remotely controlled and monitored with or without an android based app. It uses various sensors to not only monitor the real time device tracking but also maintaining the security of your house. It is monitored and controlled remotely from an android app using the Internet or the Intranet connectivity. The proposed outcome of the project aims as multiple benefits of saving on electricity bills of the home as well as keep the users updated about their home security with an option of controlling the switching of the devices by using their voice or simple toggle touch on their smartphone, and last but most importantly, monitor the usage in order to conserve the precious natural resources by reducing electrical energy consumption.

# .**INTRODUCTION**

The Internet of Things is the network of "things" which are connected to a common network path in order to communicate, exchange data or control each other. The network path can be interconnected or interconnected with the "things" being either embedded software, hardware or any sensor. It refers to the state where the things will have more and more data and information associated with them and have a ability to communicate, produce new information and become the integral part of the free world wide web. It not only features internet connectivity but also features cloud and data management, security management and all other fields concerned with the era of internet.

Nowadays, there is a growing demand of automation and intelligent systems so that it leaves us with less human intervention and smart decision making devices. With the forced the competitors to come out with more intelligent, efficient as well as user friendly models. This has made our lives easier from making our intelligent travel arrangements to our personal medical care. With a tap of your finger you can control your lights, with a single tap you can book your flight tickets, monitor traffic and weather and so on. It will refine our workflows, prioritizing tasks and projects based on ongoing assessments in real time of what is happening throughout our organization. The Internet of Things will maintain our appliances and vehicles, determining when they are next due for service, cleaning, or – in the case of our refrigerators – restocking (and making appropriate arrangements, such as repair appointments and grocery orders). It will enable our cars to communicate with other cars on the road as they self-drive us to and fro. It will regulate our lights, heat, AC, and other home appliances and devices, turning them on and off as we enter and exit rooms and as they "learn" our schedule. And that's not all.

Save money on energy use, while keeping your office or building comfortable. The cost of simply forgetting to turn off your classroom lights and electric appliances can really add up over time. Controlling temperature and lighting based on time of day or occupancy can really reduce energy costs. Automating your heating and lighting systems allows you to hand over the routine chores to a smart system and remove the cost of human error. Have your systems set automatically, or override the main settings with easy controls - Touchscreens, is no longer just for greenies, with the typical family power bill has risen by 78% in less than an Internet, web-enabled phones, or even the office telephone. Intelligent building efficiency is not just relegated to offices. As energy prices rise and incomes are squeezed, home automation systems will become a more enticing investment as their efficiency improves and costs decline due to innovation and scale.

This paper proposes an IoT based smart and intelligent energy and security management system to autonomous power control system in a user friendly and a mobile way so that a user can manage the power management as well as security of their house even when not at the house itself, minimizing the power consumption and maximize utilization of resource by smart real time tracking and monitoring of the electrical devices and security of the house.

ANDROID APPLICATION SMART PHONE

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