

Economical Home Automation

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Abstract – Smart Home Technology encircles a wide range of devices through Internet, simply known as Internet of Things (IoT). These devices are connected directly to the internet and controlled via a parent device. Plenty of Smart Home solutions are present in the world, the main drawback is the products are excessively pricey and literally the customer should own the household products of the relevant company. The main objective of this research is to convert every household device into a smart device by providing computing power to all connected devices using ubiquitous computing, that can be accessed through internet and controlled via mobile phone with Google Assistant and Alexa. Apart from the main objective the sub objectives are to conserve time due to busy schedules and for the aid of people with disabilities and elderly. ESP32 is the pivotal component, it's a low power system on a chip microcontroller which integrated Wi-Fi and dual mode Bluetooth. A third-party application known as 'Sinric-Pro' is used to link the devices with Google Assistant and Alexa. In this research two household bulbs and a fan are used for the implementation. These devices are connected to the ESP32 with relays and each device has a unique device ID which is given by the Sinric-Pro application which acts as a switch. When a voice command or a command from relevant application is given to the Google Assistant or Alexa through the mobile phone, the devices start responding to the specified instructions. The proximity between the household devices and the parent device might be any length of time. This system is simple as well as inexpensive, and it can be accessed from anywhere in the globe with a moderately strong internet connection. This provides an Ultimate Smart Home experience.

Keywords: Internet of Things (IoT), computing power, ubiquitous computing, low power system