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Design of Electrical Equipment Control in Buildings Using IoT Technology

Pham Trung Hieu
Faculty of Electrical Engineering, School of Electrical and Electronic Engineering, Hanoi University of Industry, 298 Cau Dien Street, Tay Tuu Ward, Hanoi, Vietnam

Abstract— *Smart electrical equipment is an automation solution that allows connecting electrical devices in the home to form an easy-to-control network. With this combination, it will be easy to control the devices, with the ability to automatically process and notify users. In addition, this combination has the ability to interact with some environmental parameters, helping users to monitor and control devices remotely, bringing safety, convenience, savings and demonstrating the user's class. In terms of material things, how can our quality of life be improved, that is when our needs are met more than before. The needs here can be having enough food, having nice clothes, no traffic jams, reducing worries, not having to remember many miscellaneous things in the head, these will all be met by IoT.*

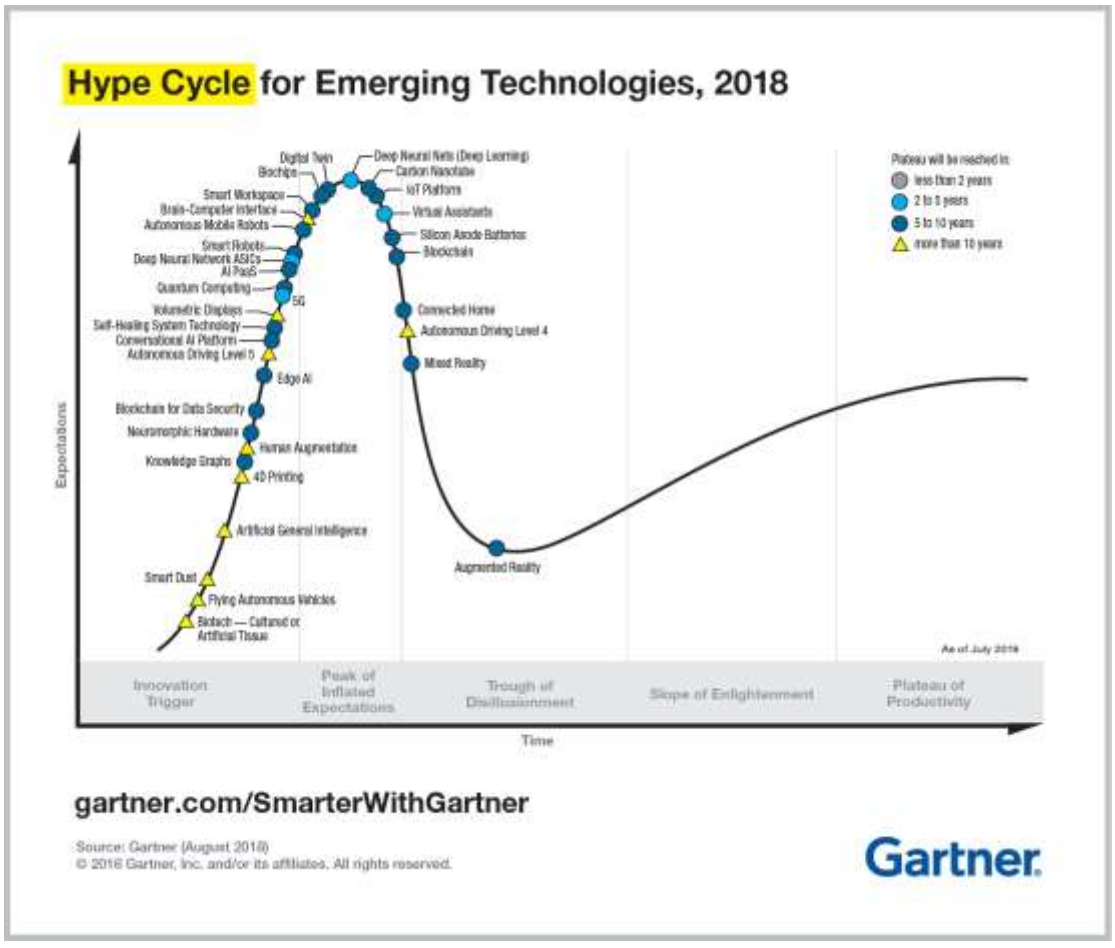
Keywords— *IoT, smart electrical devices.*

I. POSE THE PROBLEM

The Internet of Things (IoT) is a network of objects equipped with sensors or special electronic systems that allow them to connect to each other to collect and exchange data. Objects in this network can be connected to the Internet for remote control purposes.

According to Gartner's annual report on technology trends that will change the world in 2018, IoT is at the peak of expectations and applications of IoT in the next 5-10 years will be widely applied in real life.

In 2003, with 6.3 billion people, there were 500 million internet connections, with each person owning 0.08 connected devices. In 2020, with 7.6 billion people, there were 50 billion connections, with 1 person owning 6.58 internet-connected devices.

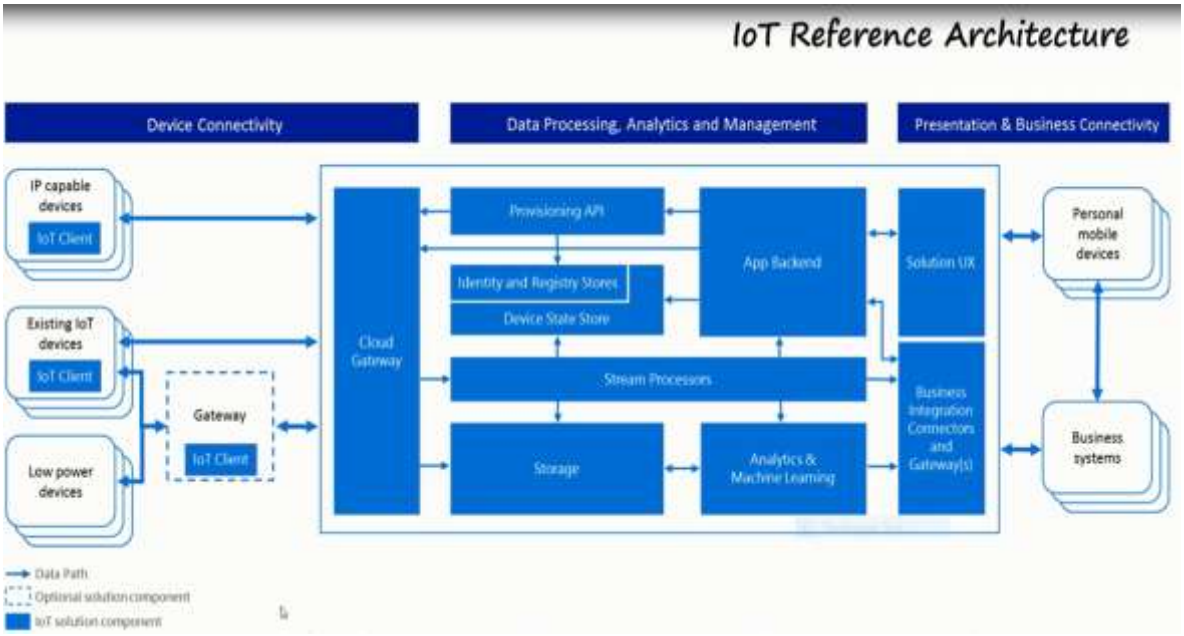


Automatic electrical equipment in the house is an outstanding feature of the smart home solution, bringing you a more modern and convenient life. With the integration of motion sensors and smart light sensors, the device still works very well without human support.

II. Smart Electrical Switch Design

Smart electrical switches are one of the smart electrical devices, capable of connecting and interacting with other smart devices in the home thanks to the IoT system.

Hardware design



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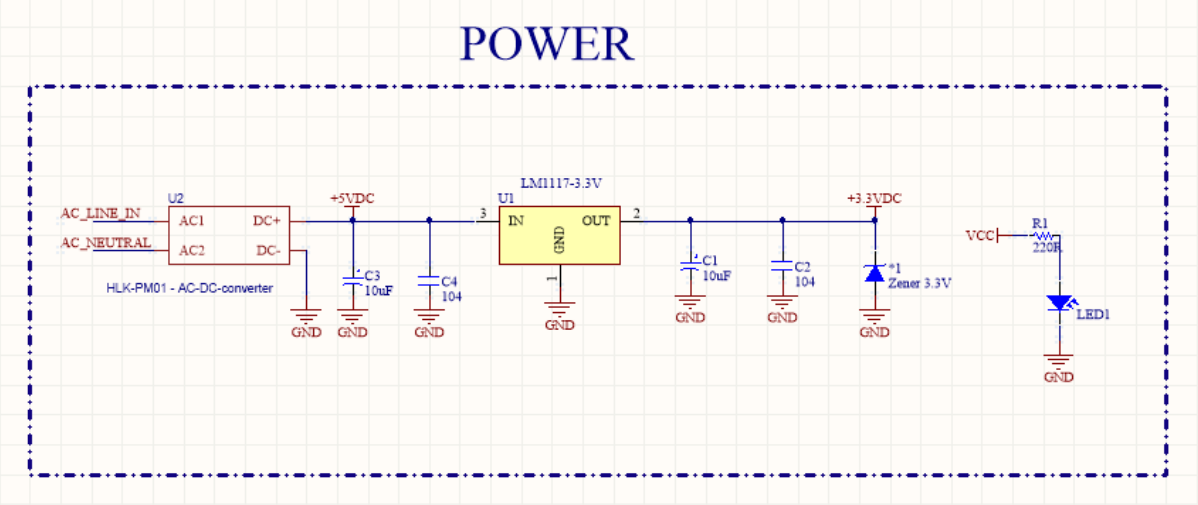
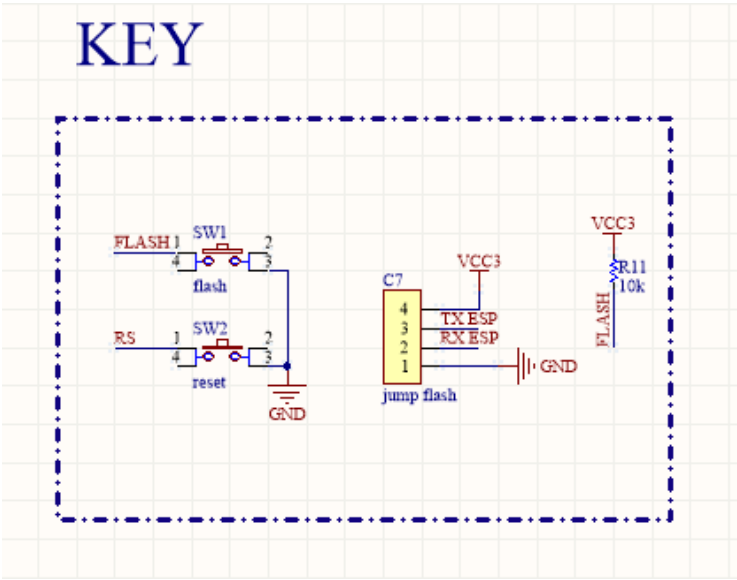
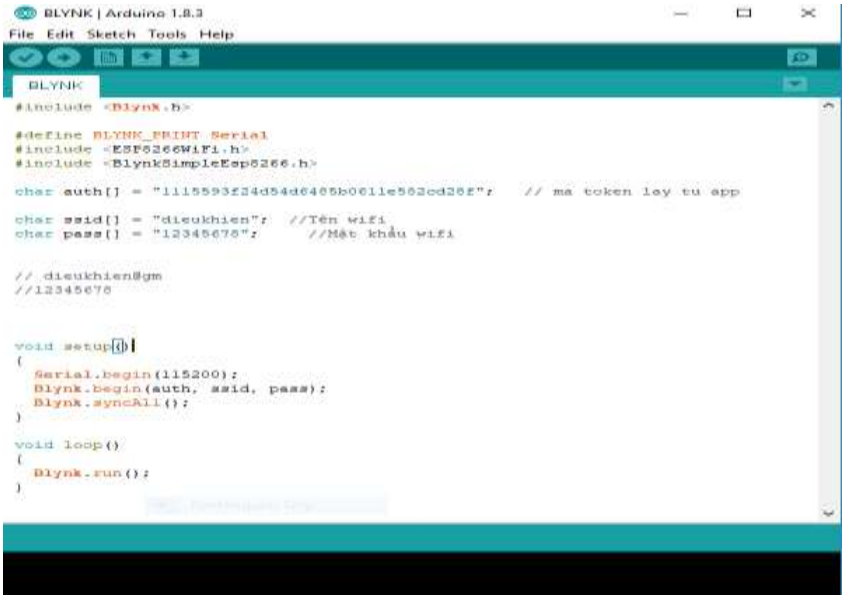
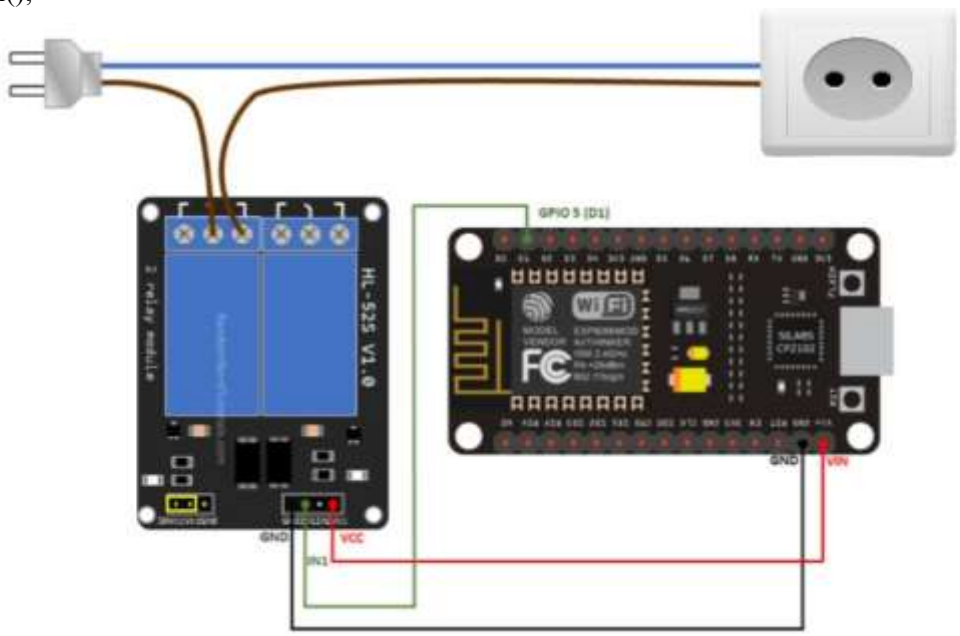




III. Analysis Results



```
#include <Blynk.h>
#define BLYNK_PRINT Serial
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>
char auth[] = "1115593f24d54d6485b0611e582cd28f";   // ma token lay tu app
char ssid[] = "dieukhien";  //Tên wifi
char pass[] = "12345678";     //Mật khẩu wifi
// dieukhien@gmail.com
//12345678
void setup()
{
 Serial.begin(115200);
 Blynk.begin(auth, ssid, pass);
 Blynk.syncAll();
}
void loop()
{
 Blynk.run();
```



IV. Conclusion

Deeper understanding of IOT, ESP8266 signaling process and methods
Design the device, the device can be connected and controlled as required by the question.
Proficient in using blink monitoring and control software
From the results achieved, I see some possible development directions for the topic such as:
Improve device accuracy and stability. Add extended functions, monitor and control on webserver.
Expand your device, allowing you to monitor and control more devices
Proceed to make a product that can compete in the market.

References

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