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IOT GADGETS ON THE WIRELESS AP AT HOME

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ABSTRACT

This Project demonstrates hosting IoT gadgets on the wireless AP (Access Point) at home. Then, to execute and control the instances of the virtualized IoT objects on the wireless AP. The demonstration shows the IoT gadget registration, monitoring, and control on the wireless AP.The web browser monitors and controls the home appliances. We use LPC 2148 microcontroller for making decision in receiver side. We use wifi access point so wifi module receives signal and send to the microcontroller. Then microcontroller decides which load you want to control. ARM7TDMI is an advanced version of microprocessors and forms the heart of the system. With a wide range of serial communications interfaces, they are also very well suited for communication gateways, protocol converters and embedded soft modems as well as many other general-purpose applications

Keywords: AP(Access Point)

I INTRODUCTION

This Project demonstrates hosting IoT gadgets on the wireless AP (Access Point) at home. For this, the process and profile of the IoT gadgets need to be virtualized into Java Script based objects. Then, to execute and control the instances of the virtualized IoT objects on the wireless AP.

The demonstration shows the IoT gadget registration, monitoring, and control on the wireless AP.The web browser monitors and controls the home appliances. We use LPC 2148 microcontroller for making decision in receiver side. We use wifi access point so wifi module receives signal and send to the microcontroller. Then microcontroller decides which load you want to control.

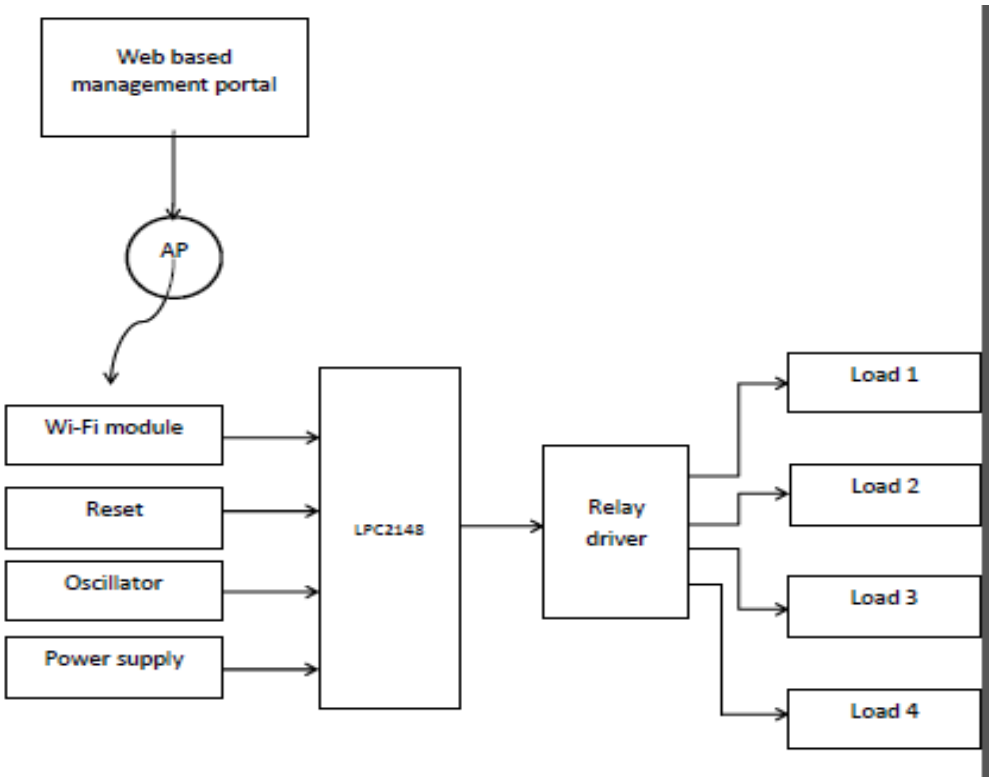
ARM7TDMI is an advanced version of microprocessors and forms the heart of the system. The LPC2148 are based on a 16/32 bit ARM7TDMI-S™ CPU with real-time emulation and embedded trace support, together with 128/512 kilobytes of embedded high speed flash memory. A 128-bit wide memory interface and unique accelerator architecture enable 32-bit code execution at maximum clock rate. For critical code size applications, the alternative 16-bit Thumb Mode reduces code by more than 30% with minimal performance penalty. With their compact 64 pin package, low power consumption, various 32-bit timers, 4- channel 10-bit ADC, USB PORT,PWM channels and 46 GPIO lines with up to 9 external interrupt pins these microcontrollers are particularly suitable for industrial control, medical systems, access control and point-of-sale. With a wide range of serial communications interfaces, they are also very well suited for communication gateways, protocol

converters and embedded soft modems as well as many other general-purpose applications.

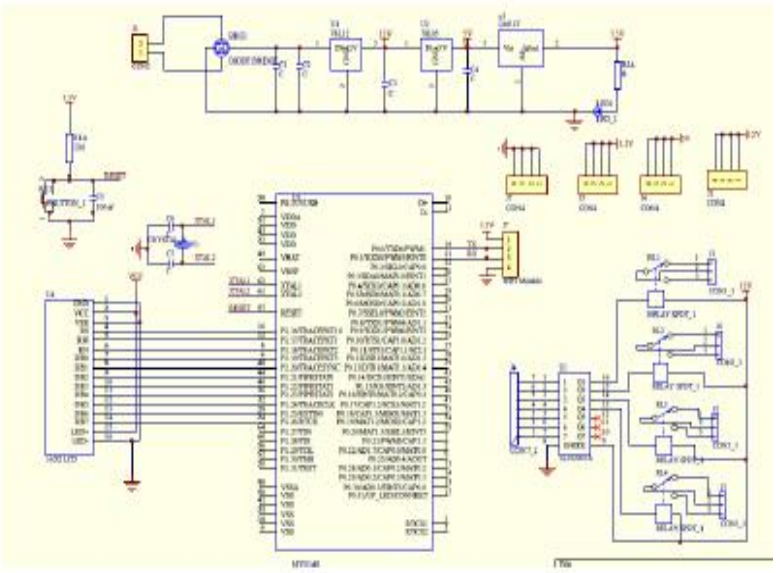
II WORKING

Newer ARM processors have a compressed instruction set, called Thumb that uses a 16-bit-wide instruction encoding (but still processes 32-bit data). In Thumb, the smaller opcodes have less functionality. For example, only branches can be conditional, and many opcodes cannot access all of the CPU's registers. However, the shorter opcodes give improved code density overall, even though some operations require more instructions. Particularly in situations where the memory port or bus width is constrained to less than 32 bits, the shorter Thumb opcodes allows greater performance than with 32-bit code because of the more efficient use of the limited memory bandwidth. Typically embedded hardware has a small range of addresses of 32-bit data path and the rest are 16 bits or narrower (e.g. the Game Boy Advance). In this situation, it usually makes sense to compile Thumb code and hand-optimize a few of the most CPU-intensive sections using the (non-Thumb) 32-bit instruction set, placing them in the limited 32-bit bus width memory. The first processor with a Thumb instruction decoder was the ARM7TDMI. All ARM9 and later families, including XScale have included a Thumb instruction decoder.

2.1 Block Diagram



2.2 Circuit Diagram



III CONCLUSION

In this demonstration, to enhance the user experience on connecting and controlling personal IoT gadgets at home, away of hosting the instances of the IoT gadgets on the wireless AP is introduced. This revealed that legacy wireless AP can host instances of IoT gadgets securely, efficiently, and effectively for home IoT service.

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