

Remote Controller Application Note

1. Introduction

This Application Note includes Hardware TCP/IP Chip- W3100 embedded on 8051 evaluation board & relay module to remotely control power on/off through the Internet. The 8051 evaluation board consist of 8051 MCU, memory control, W3100 (TCP/IP), RTL8201 (Ethernet PHY). Relay module consist of transistor switch, relay, connectors.

2. Implementation

Picture 1-1 shows Remote Controller Application Module. The 8051 evaluation board is connected to the relay module.

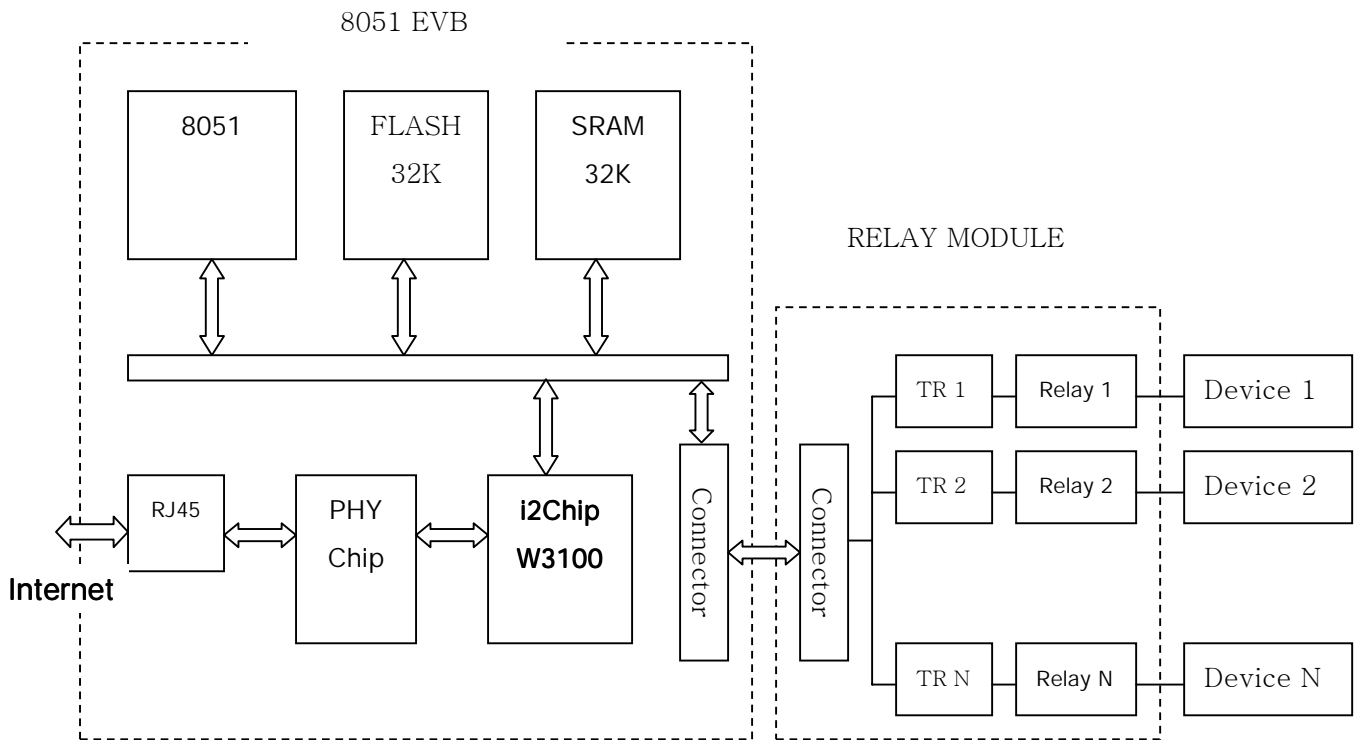


Picture 1-1. 8051 Remote Controller Application Module

Picture 1-2 and Picture 1-3 shows Remote Controller Application Module's protocol stack and configuration block diagram.

| Application | |
|---------------|-------|
| i2Chip Driver | Relay |
| TCP/UDP | |
| IP | |
| MAC | |
| PHY | |

Picture 1-2. Protocol Stack



Picture 1-3 Configuration Block Diagram

2.1 Features

2.1.1 Internet Connection

Hardware TCP/IP chip W3100 does not require OS, just low-end MCU W3100 to enable Internet usage.

* Detail specifications of W3100 are available on datasheet

2.1.2 Remote Control

- 110V/220V Relay Function

2.2 Operation

Through the Internet, remote control of power ON/OFF using 8051 MCU with W3100 receiving data control information through remote control module to transfer data.

2.3 Memory Map

2.3.1 ROM

0x0000
0x7FFF

Flash

Remote Controller Driver Code

| |
|--------|
| Unused |
|--------|

2.3.2 RAM

| | | |
|------------------|----------------|--------------------|
| 0x0000 0x7FFF | SRAM | Runtime Data |
| 0x8000 0x8FFF | W3100 Register | W3100 Control Data |
| | Unused | |
| 0x9A00 0xFFFF | W3100 Buffer | W3100 Data Buffer |

2.4 Components

2.4.1 8051 Evaluation Board

| Model | Description |
|--------------|------------------------------|
| AT89C51 | MCU(Atmel) |
| AT29C256 | 32K x 8, Flash Memory(Atmel) |
| UM61256FK | 32K x 8, RAM(UMC) |
| ATF16V8B | 250gate, 20pin, PLD(Atmel) |
| MAX232 | Dual RS232 |
| RTL8201 | PHY(Realtek) |
| i2Chip W3100 | TCP/IP(WIZnet) |

2.4.2 Relay Module

| Model | Description |
|---------|------------------------|
| DY1S-5H | Relay(Dong Yang Relay) |

* Detail specification is available on individual datasheet

3. Summary

By using Remote Controller Application Module, electronic devices can be powered on/off through the Internet. Remote Controller Application Module can be applied to various applications like remote metering, home automations, factory automations, security and industrial control.