

Industrial IoT Minor

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Experiment - 4

AIM: To interface Motor using relay with ESP32

OBJECTIVE: To write a code in Arduino IDE and interface motor using relay.

THEORY: An electric motor is an electrical machine that converts electrical energy into mechanical energy. Most electric motors operate through the interaction between the motor's magnetic field and electric current in a wire winding to generate force in the form of torque applied on the motor's shaft.

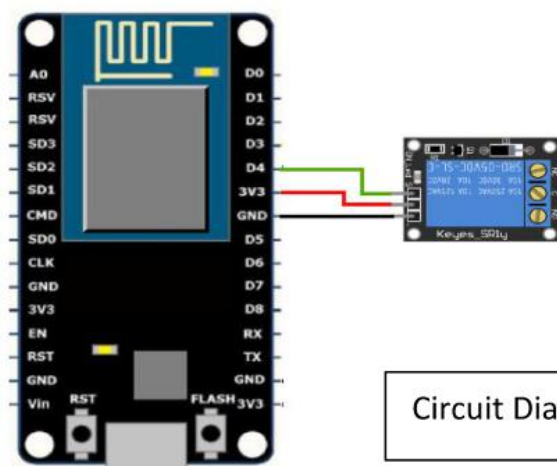
SIMULATION CODE:

```
int relayInput = 2;

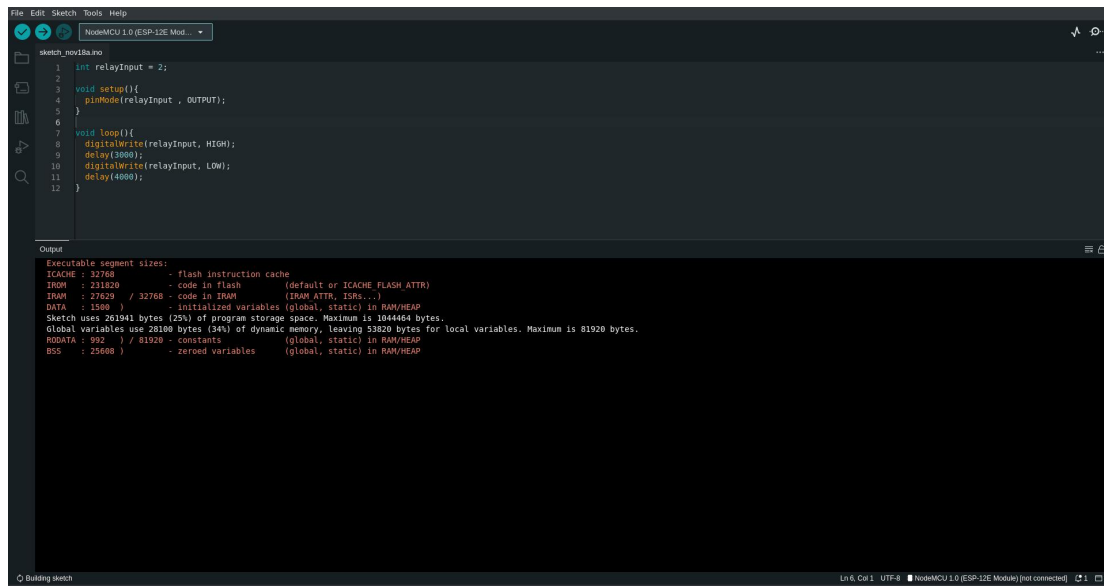
void setup(){
  pinMode(relayInput , OUTPUT);
}

void loop(){
  digitalWrite(relayInput, HIGH);
  delay(3000);
  digitalWrite(relayInput, LOW);
  delay(4000);
}
```

SIMULATION RESULT:



Circuit Diagram



```
File Edit Sketch Tools Help
NodeMCU 1.0 (ESP-12E Mod...)

sketch_new1.ino
1 int relayInput = 2;
2
3 void setup(){
4   pinMode(relayInput, OUTPUT);
5 }
6
7 void loop(){
8   digitalWrite(relayInput, HIGH);
9   delay(3000);
10  digitalWrite(relayInput, LOW);
11  delay(4000);
12 }

Output
Executable segment sizes:
ICACHE : 32768      - flash instruction cache
IRAM   : 231820     - code in flash (default or ICACHE_FLASH_ATTR)
IRAM   : 27829 / 32768 - code in IRAM (IRAM_ATTR, ISR,...)
DATA   : 1500      - initialized variables (global, static) in RAM/HEAP
Sketch uses 261941 bytes (25%) of program storage space. Maximum is 1044464 bytes.
Global variables use 28190 bytes (84%) of dynamic memory, leaving 53520 bytes for local variables. Maximum is 81920 bytes.
RODATA : 992      - constants (global, static) in RAM/HEAP
BSS    : 25608     - zeroed variables (global, static) in RAM/HEAP

Building sketch
Ln 6, Col 1 UTF-8 NodeMCU 1.0 (ESP-12E Module) [not connected]
```

CONCLUSION: After performing this experiment we were able control motor using relay with NodeMCU.