Experiment no: 08

Name of the experiment: control a high voltage load using mechanical relay.

objective(s):

1. To learn how to interface ac load through relay with pic microcontroller
2. To design and operate the circuit of relay interfacing.

Theory: An electronic switch name is relay, using low power circuits. Relay isolates low power circuits from high power circuits. It is activated by emerging coil wounded on a soft iron core. A relay should not be directly connected to a micro controller. Because -

1. A microcontroller is not able to supply current required for the working of relay. Maximum current that a pic microcontroller handle is 25 mA while a relay needs about 50 - 100mA current.
2. A relay is activated by emerging its coil. Microcontroller may stop working by the negative voltages produced in the relay due to its back emf.

Apparatus required: PIC16F877A, crystal, capacitors, resistor, transistor, diode, relay, ac voltage.

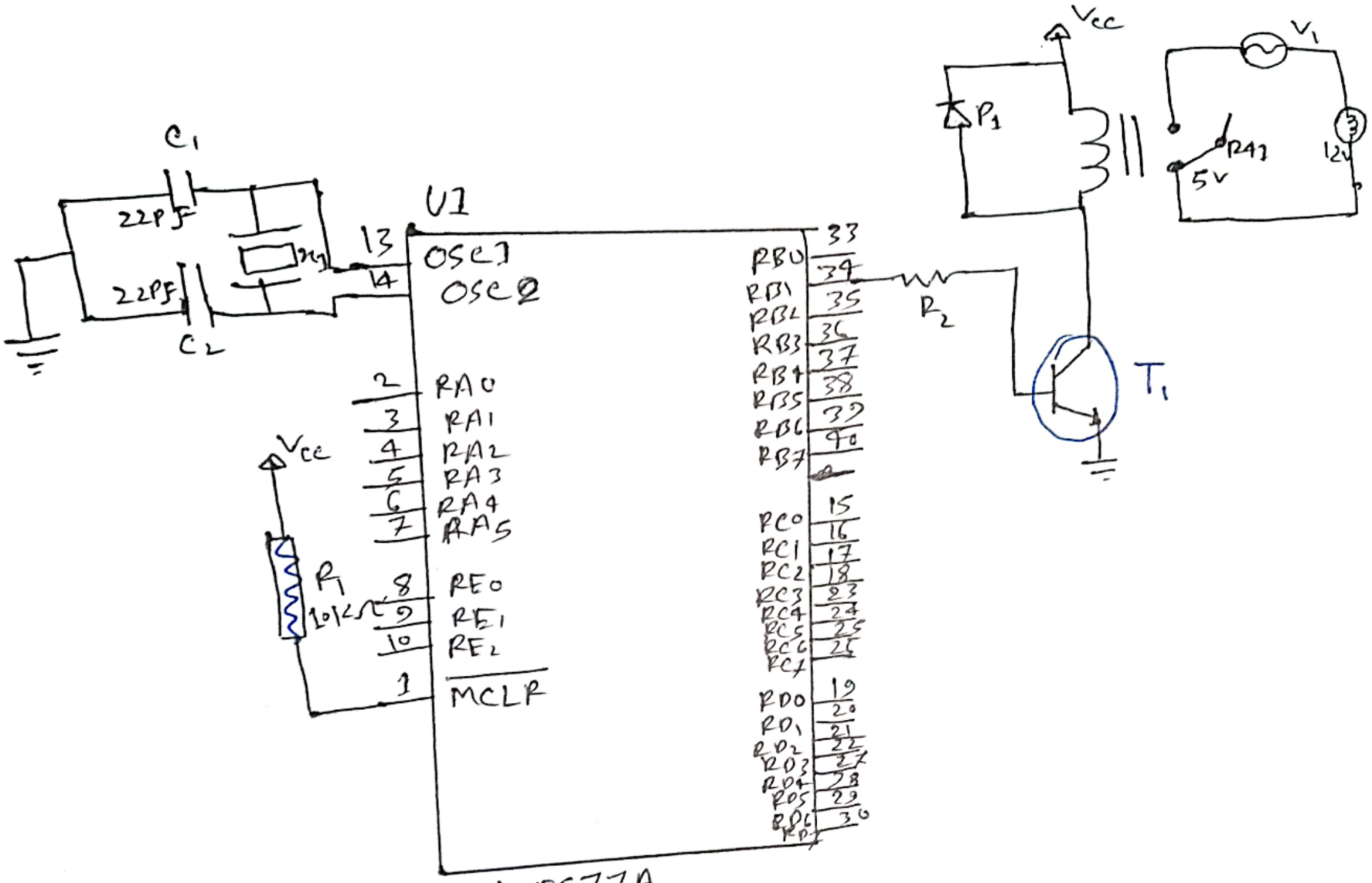

Fig 1 A high voltage load control using mechanical relay

Source code:

```
void main()
{
  TRISB = 0X00;
  PORTB = 0X00;
  while(1)
  {
    PORTB.f1 = 1;
    delay_ms(2000);
    PORTB.f1 = 0;
    delay_ms(2000);
  }
}
```