

16.317: Microprocessor Systems Design I

Fall 2012

Lecture 29: Key Questions

November 28, 2012

1. Explain the basic operation of stepper motors.
2. Explain how a microcontroller can be used to control a bipolar stepper motor.

3. Explain the key parts of the Lab 4 code shown below (initialization not shown).

```
Loop:                                     ; Return Here for Next Value
    movlw  HIGH ((250000 / 5) + 256)
    movwf  Dlay
    movlw  LOW ((250000 / 5) + 256)
    addlw  -1                               ; 250 ms Delay
    btfsc  STATUS, Z
    decfsz Dlay, f
    goto   $ - 3

    movf   i, w
    call   SwitchRead
    movwf  PORTC

    incf   i, f                            ; i = (i + 1) % 8;
    bcf    i, 3
    goto   Loop
```

```
SwitchRead:
    addwf  PCL, f                          ; Staying in First 256 Instructions
    dt     b'011100', b'010100', b'000100', b'100100'
    dt     b'100000', b'101000', b'111000', b'011000'
    end
```