

ภาคผนวก

(1) โปรแกรมภาษาเบสิกใช้ควบคุมการทำงานของไมโครคอนโทรลเลอร์

```

define osc 20

define LCD_BITS 4           ' mode 4 bit
define LCD_LINES 2          ' 2 line lcd
define LCD_DREG PORTD
define LCD_DBIT 4           'data start bit4 (RD4)
define LCD_RSREG PORTC
define LCD_RSBIT 6          'rs pin
define LCD_EREG PORTC
define LCD_EBIT 7          'en pin

define ADC_BITS 10          ' adc 10 bit
define ADC_CLOCK 2          'clock = fosc/32

AD_val var word
AD_val2 var word
myCount var byte
volt var word
AD_RES var word

pause 500

define osc 20

Ang0 var byte
Ang1 var byte
Ang2 var byte
Ang3 var byte
time var word
decx var byte

```

```

SCR2 var PORTB.0    'RB0 pin =trigger
SCR1 var PORTB.1    'RB1 pin =trigger
SCR4 var PORTB.2    'RB2 pin =trigger
SCR3 var PORTB.3    'RB3 pin =trigger
ZeroDet var PORTB.7 'RB7 pin = Zero crossing Dector

```

INIT:

```

ADCON1 = %10000000    ' Set PORTA analog and RIGHT justify result
TRISA = %11111111    ' Set PORTA to all input
TRISE = %00000111    ' Set RE0,RE1,RE2 as input
TRISB = %11110000    ' Set RB7,RB6,RB5,RB4 as input
PORTB = %11111111
myCount=0
time=5000
low PORTB.5

```

main:

```

if ZeroDet=0 then
goto main
endif

```

```

ADCIN 0,AD_val    ' ADC 1 channel
ADCIN 2,AD_val2    ' ADC 2 channel

```

```

if AD_val > 1000 then
AD_val=1000
Endif

```

```
if AD_val < 45 then
```

```
AD_val=45
```

```
Endif
```

```
time=AD_val * 10
```

```
pauseus time
```

```
LOW SCR1
```

```
LOW SCR3
```

```
LOW SCR4
```

```
LOW SCR2
```

```
pauseus 1000
```

```
HIGH SCR1
```

```
HIGH SCR3
```

```
HIGH SCR4
```

```
HIGH SCR2
```

```
if myCount >=20 then
```

```
myCount=0
```

```
Ang0= AD_val *18/100
```

```
Ang1=AD_val *18//100
```

```
Ang2=Ang1/100
```

```
Ang3=Ang1//100
```

```
AD_RES = AD_val/4 'output dc voltage
```

```
lcdout $FE,1
```

```
lcdout "OUTPUT= ",dec AD_RES," Volt"
```

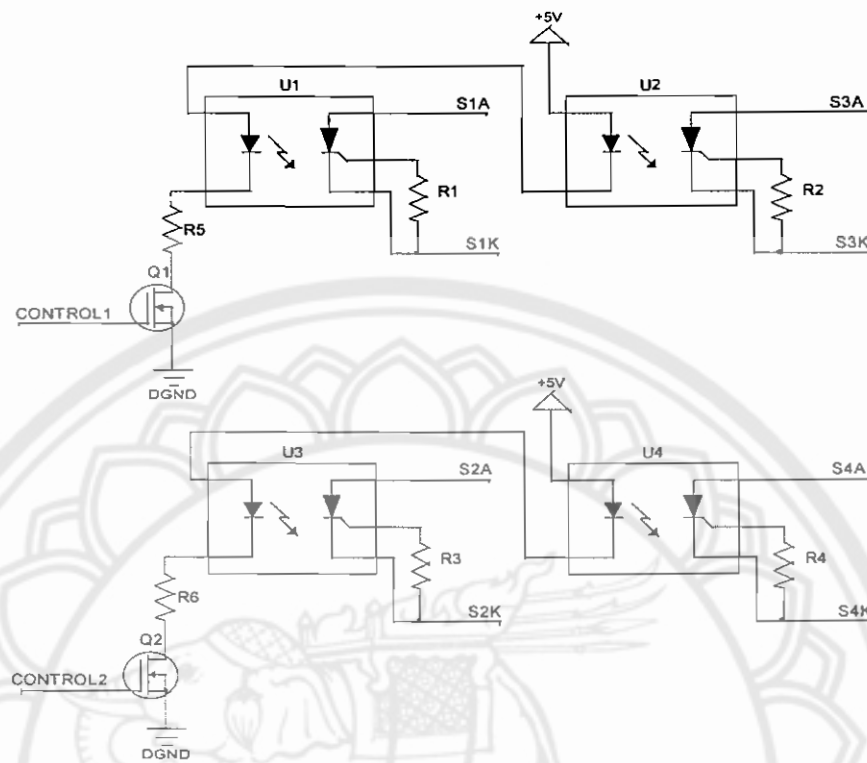
```
LCDOUT $FE,$C0,"Angle= ",DEC Ang0,".",DEC Ang2,dec Ang3," ",%11100000
```

```
Endif
```

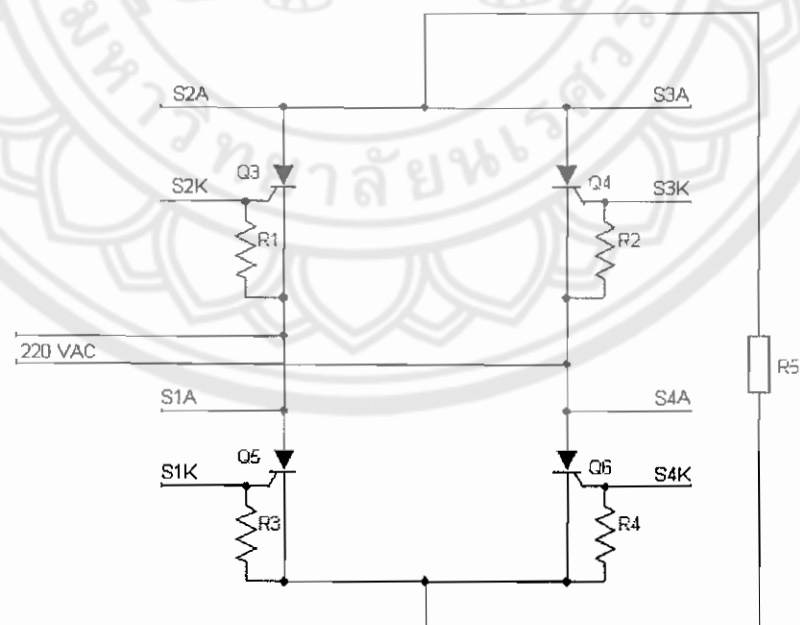
```
myCount=myCount+1
```

```
goto main
```

(2) วงจรอ้างอิงในการขับไทรสเตอร์



รูปอ้างอิงที่ 1 วงจรควบคุมภาคขับสัญญาณไทรสเตอร์



รูปอ้างอิงที่ 2 วงจรขับการทำงานของไทรสเตอร์