



port B. 8 pin using in the port C. Pin 1 is using for memory clear active for reset (MCCR) and pin 20 is using for 5volt supply in the microcontroller. Pin number 8 and 19 is connected to ground. Pin number 9 and 10 can be connected to crystal oscillator. Crystal oscillator provides frequency to micro controller. Crystal oscillator frequency is 3.57MHZ. Crystal oscillator is also connected to two stability of capacitor. Capacitor frequency is 22 and 28 micro faraday. In the port A (0 to 5) PA0 is connected to 5 volt supply and PA1 to PA5 is not connected in the micro controller. Now port B is using 8 pin. Port B pin can be divided into pin 21 to pin 28. Pin 21 and pin 22 cannot be using in the microcontroller. Pin 23 and pin 24 is connected to LCD16\*2 pin 4 and pin 6. Pin 23 to pin 24 is also called control line. Pin 25 to pin 28 is connected to LCD16\*2 pin 11 to pin 14. Pin 25 to pin 28 is called datelines. Now we have discussed to port C in this port divided into pin 11 to pin 18. Only pin 18 and pin 17 can be using in this port and pin 11 to pin 16 is not using in the micro controller. Pin 17 pin 18 using to universal synchronous asynchronous receiver to transmitter (USART). Pin 17 is also connected to radio transmission circuit.

Now we explained Liquid crystal display LCD16\*2. The main working of LCD is show the RPM speed of servo motor. In the LCD 16 pin can be using in the project. Pin 1 is connected to ground. Pin 2 is connected 5 volt supply. Pin 3 is connected to contrast. Pin 5 can be using read and write to ground. But in the LCD write programming can be used. Pin 15 and pin 16 can be denoted by B+ and B-. Pin 15 and pin 16 can be using for adding both generating lights. Pin 4 and pin 6 can be connected to control line and pin 11 to pin 14 can be using datelines.

Now we have explained the micro controller PIC16F73. In the microcontroller 28 pin can be used. In the micro controller 5volt supply can be used. Pin 20 can be used for power supply.pin 1 can be used memory clear active for reset. Pin 9 and pin 10 can be used for connected to oscillator. Capacitor is also connected to oscillator. Pin 18 can be using for the receiver to receive data form USART. PIN 17 can be using to connect MAX232. In this micro controller only 8 pin can be used. Mainly working of this micro controller is receiving data and gives to string.

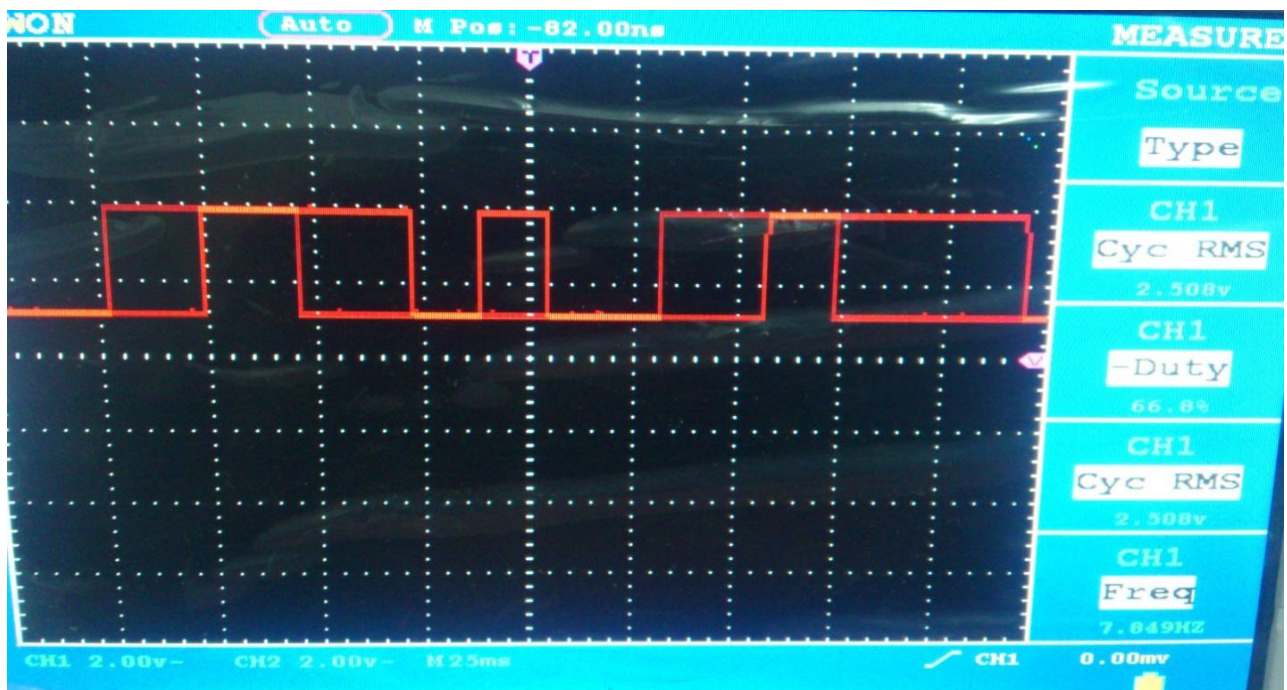
#### 4. Wave form and Discussion

This chapter provides the waveform and discussion of output waveform pitch control of horizontal axis wind turbine with PWM technology and also provides the duty cycle graph which was taken from the CRO with pulse- with-modulation PWM technique.

First, we have taken graph between the voltages vs. time in seconds from PWM technology with duty cycle switching device to different conditions.

##### Conditions 1

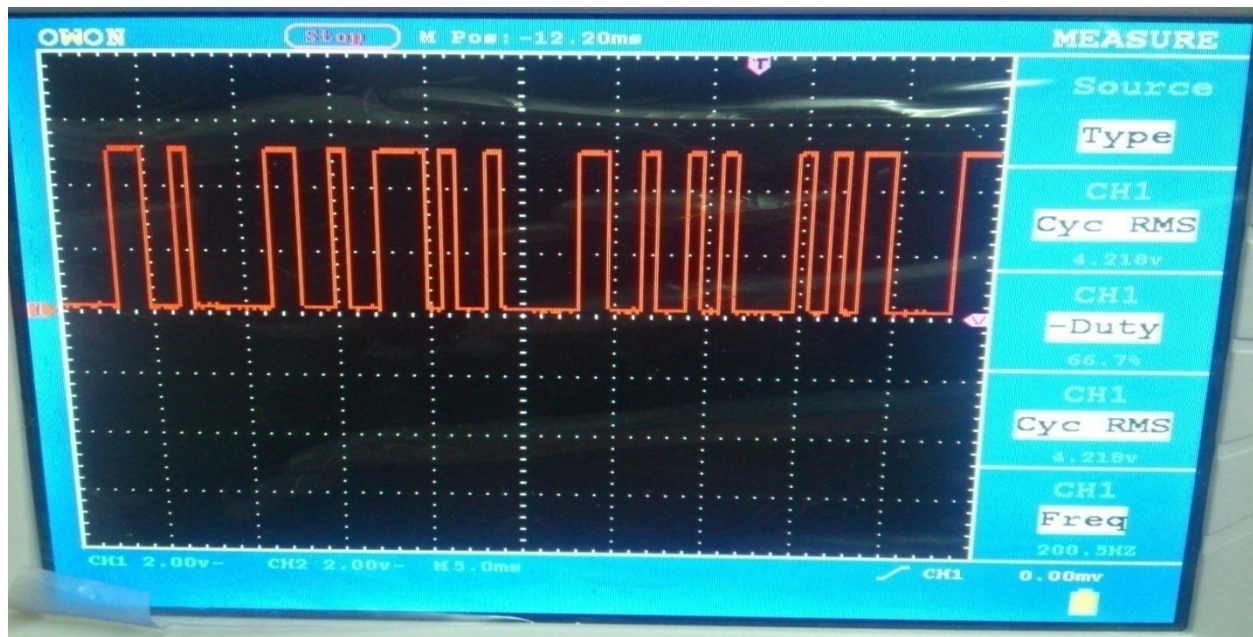
In this condition we have taken the waveform of rpm of this system which can be varied with the help of variable resistors and rpm show the rotation of wind turbine with pitch.This waveform between servo motor. This waveform show speed variation in wind mill. The waveform of this rpm wind turbine shown in below



##### Condition 2

In this condition we have taken the microcontroller's waveform of this system which is shown the 5.168 v on

screen and this waveform show tilt angle between wind mill pitch. In this different wind speed have different tilt angle waveform. The waveform of this condition shown in below



## 5. Conclusion

We have successfully designed the prototype model. We have successfully studied of pitch control of windmill in horizontal wind turbine. In this model we can control the pitch of wind mill with help of servo motor. We can also measure speed of wind mill. In this model we can use the communication technology between base unit and fan units. In the prototype model control the pitch control.

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