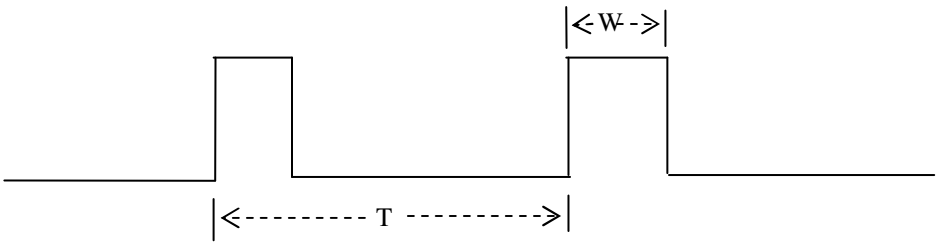
How to connect to RC Servos

Use On-board RC PWM Generator

The iMicro Robotic Controller board has dedicated PWM signals generator for controlling 16 RC servos. These 16 PWM signals are available from connector J10 and J15. The RC servo has 3 wires. The signal wire (yellow) of the RC Servo can be connected one of these control signals. The power supply of the RC servo can be tapped from the 5V connector (J2). Alternatively, power supply can be from external source. When the RC servo is powered from external source, make sure the ground the external power source and ground of the iMicro board is connected.

The RC PWM pulse refer to the pulse signal with the following waveform



Note that the pulse width **W** is ranging from 1.0msec to 2.0msec. The period of the RC PWM pulse **T** is 40msec.

The RC PWM signal generator is able to change the pulse width from 1.0msec to 2.0msec at the minimum step of 0.1usec. That is to say, a maximum 10,000 different pulse width can be generated for each channel

The following function is used change the pulse width

```
SetRCServo(unsigned char ch, int offset)
```

Where the parameter `ch` is to indicate the channel to be changed, the parameter `offset` is to indicate the offset from 1.5msec (a difference of 1 in offset means difference of 0.1usec in pulse width).

For example, to generate a pulse width of 1.5msec for channel 1,

```
SetRCServo(1, 0)
```

To generate a pulse width of 1.4msec for channel 2,

```
SetRCServo(2, -1000)
```

To generate a pulse width of 1.7msec for channel 15,

```
SetRCServo(15, 2000)
```

Use Digital IO as RC PWM generator

The iMicro board has 16 digital I/Os ports and if you don't need to use them as Digital I/Os, these ports can be used to control another 16 RC servos as well. The library functions to turn these ports to RC PWM generator are provided.

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