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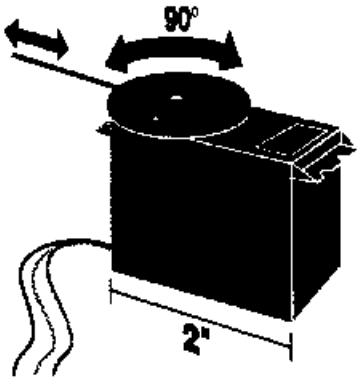
RC servo controlling

Servo motors used in radio controlled models (cars, planes etc.) are very useful in many kinds of small robotics experiments because they ase small, compact and quite inexpensive (about 20 US dollars). The servo motors itself have built in motor, gearbox, position feedback mechanism and controlling electronics. The servo motor can be controlled to move any position just by using simple pulse controlling.



Servo motors have three wire interface for controlling and power supplying. The wires are colored using following color code:

```
BLACK     Ground
WHIT      Control pin
RED       +4.8V power supply (+5V works well in this)
```

Controlling of the servo motors is used using pulse controlling. The control pulse is positive going pulse with length of 1 to 2 ms which is repeated about 50-60 times a second. You can check the details in the figure below:

```
     ____                              ____       _+4.8V
    |    |                            |    |
    |    |                            |    |
____|    |____________________________|    |____  _GND

    |<-->|
    1..2 ms

    |<--------------------------------->|
         18-25 ms
```

Sending 1 ms pulses sets the servo to one end position and sending 2 ms pulses sets it to the other end position. Sending 1.5 ms pulse sets the servo motor to the center position.

The controlling scheme is very easy to impelement with some electronics. You can easily build a timer circuit using 555 timer chip for generating suitable controlling pulses or you can use small microcontroller program to do that.

Circuit: 0-10V control for RC Servos

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