This is my version of a motor controller and modified model airplane servo for the gear motor. I am using this on my 5" butterfly capacitor that has a 10 to 1 ratio shaft. The servo has been modified by removing the electronics board, removing the rotation stop on the output gear, and removing the resistor on the back of the potentiometer and cutting out its rotational stop. Before reassembly solder a 100nf capacitor across the motor to remove the voltage spikes caused by arcing brushes. Two speeds can be selected with each adjustable on the board. A Picaxe 08M2 IC, which costs less than $3, provides the pulse-width modulation. Manuals that show an easy programming interface and free software can be downloaded at http://www.picaxe.com. I buy my Picaxe chips from http://www.phanderson.com/picaxe/. I chose the Picaxe chip because I enjoy programming them and have a few spares. I already had the servo and all components except for the DPDT center off momentary switch. The program, diagram, and pictures are below.   Lee – N9LO

```
start:
        input C.3
        pause 50
        if pinC.3 = 1 then goto fast
slow:
        readadc C.1,W0
        let W0 = W0 * 4
        pwmout C.2, 249, W0
        goto slow
fast:
        readadc C.4, W1
        let W1 = W1 * 4
        pwmout C.2, 249, W1
        goto fast
```