

GWS™ Servo 360° Modification

Revision: December 22, 2010



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Overview

This document describes the steps necessary to modify a GWS Servo for continuous rotation.

Please note: performing this modification will void both GWS and Digilent warranties.

Features of the GWS Servo include:

- 0.23 second/60 degree rotation with 47 oz-in of torque at 4.8V
- 0.18 second/60 degree rotation with 56 oz-in of torque at 6V
- 3-pin Futaba-style connector
- a variety of servo horns, grommets, and mounting screws

The GWS Servo can be used for many applications. The most common use of servos is as actuators. Their ability to move with relatively high torque through a path at constant velocity makes them very useful.

However, a servo's limited rotation (~215 degrees in this case) is a barrier to some designs. There is a tradeoff to modifying a servo for continuous rotation. To allow the servo to continuously rotate, the feedback sensor must be disabled, which effectively turns the servo into a high torque, low rpm motor. The speed of the servo's rotation is controlled with Pulse Width Modulation.

Required hardware:

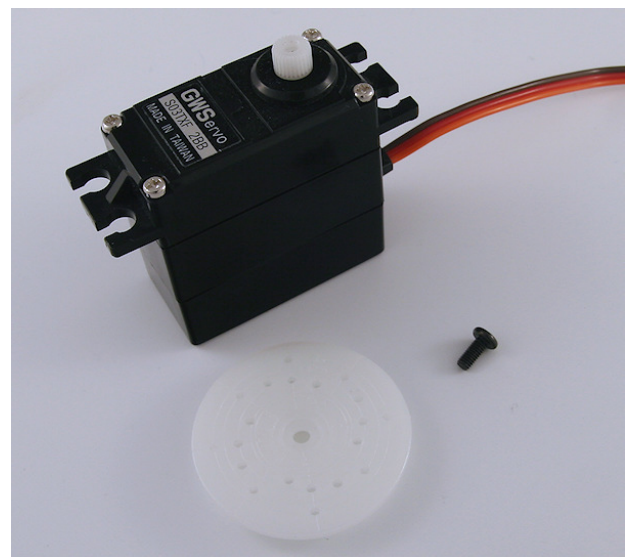
- GWS Servo
- Phillips screwdriver
- utility knife



GWS Servo

Instructions

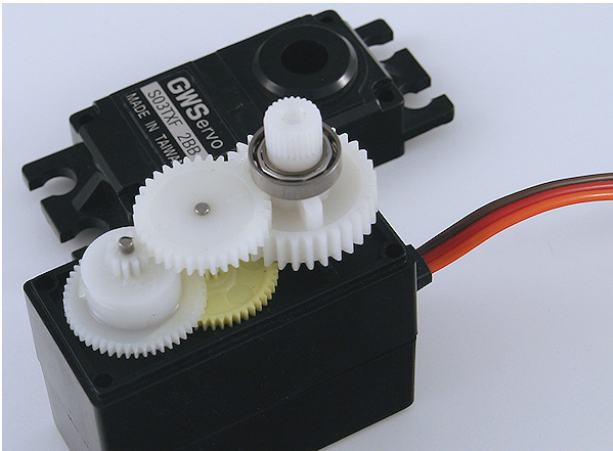
Step 1: Remove the screw that attaches the wheel to the servo.



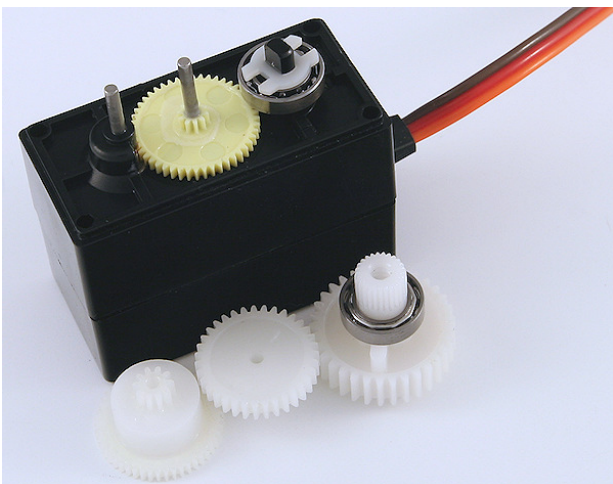
Step 2: Remove the four screws at the top corners of the servo.



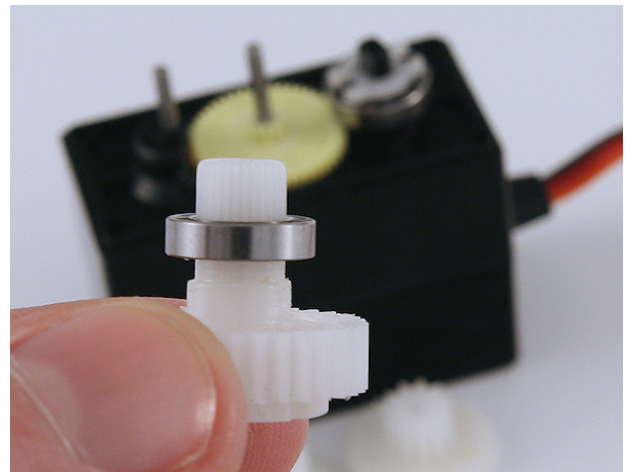
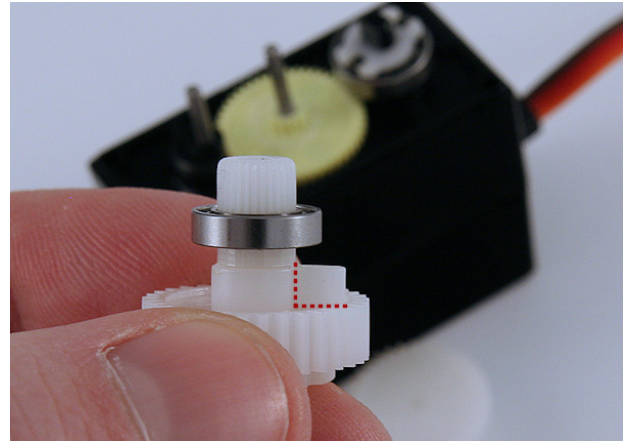
Step 3: Remove top of case to expose gears.



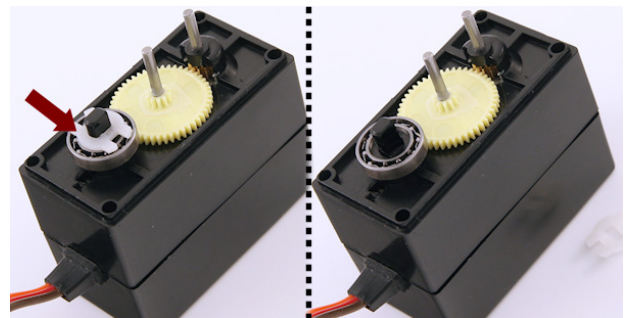
Step 4: Remove gears to expose sensor bracket.



Step 5: Remove key from drive gear with a utility knife.



Step 6: Remove sensor bracket, taking care to leave the sensor at the angle pictured.



The servo modification is now complete.