



<http://www.cindybob.com/halloween/bluckyanimation/>

## Simple Blucky Animation

A very quick and easy (but not particularly cheap) way to add some basic animation (head left/right pan) to a blow mold skeleton using the servos and the Parallax Prop-1 control board.

You will need some Bluckys (you could do up to 8 with a single Prop-1 board) available from Big Lots or Walmart (around Halloween) or online at [Rhode Island Novelty](#) (#ZH-SKGL5). A standard hobby servo for each blucky - [Servo City](#) sells standard HiTec servo for about \$9 - and a Prop-1 board from [EFX-TEK](#). You will also need a fairly long white zip tie or two for each blucky and some small self-tapping screws (6x3/8).

For tools you just need a small saw or sharp knife, a drill and a long screwdriver.

### Assembly



Figure 1. Skull

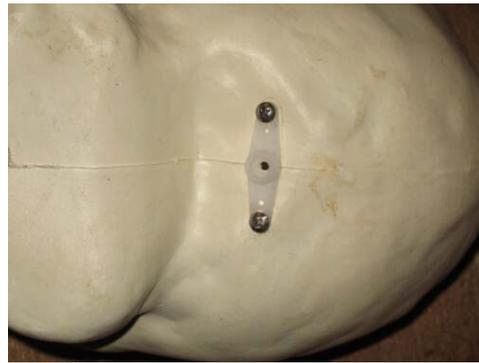
Begin by removing the skulls from the torsos and cutting off the hanging tab at the top of the skull if you like (Figure 1). Turn the skull over and center the double servo horn that comes with servo on the bottom of the skull just behind the jaw (see the pictures in Figure 2). There are two reasons for positioning the servo here rather than where the torso usually connects to the skull. First it is closer to the true center of gravity for the skull



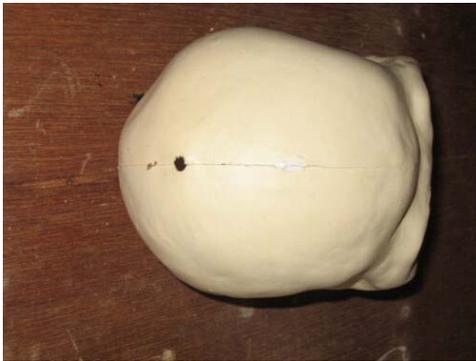
Figure 2. Servo Horn



First it is closer to the true center of gravity for the skull and second, and primary, the jaw will then help to hide the servo. Once the horn is centered outline it with pencil and mark the positions of the center hole and the two end holes. Drill a 1/8" hole at the position marking the middle hole and two small (5/64") holes at the positions marking the other two holes. Fasten the horn to the skull using the small screws and the two end holes. You may need to drill out the holes in the horn a bit for this to work. You could glue the horn to the skull but we have found the screws to be more reliable (Figure 3).



The final step in preparation of the skull is to drill about a 1/4" hole in the top of the skull directly over the middle hole of the servo horn (Figure 4).



This hole is needed to attach the servo to the horn and can easily be patched over later.



The next thing to do is to attach the servo to the torso (Figure 5).

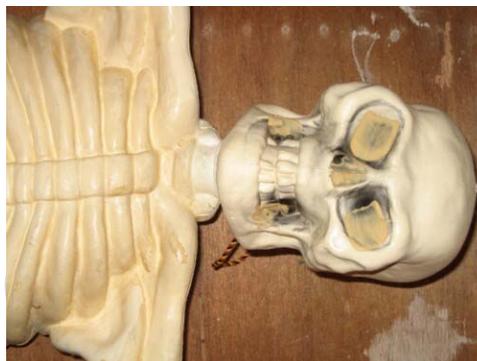
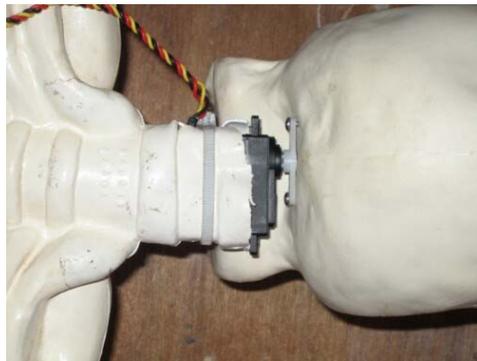
Using a saw or a sharp knife cut the very top of the neck off and cut a slit down the neck about 1/4" wide and 1" long (Figure 6).



With standard HiTEC servos the neck slit should be on the blucky's left side, this may not be true of all servos so you should determine this before hand. Once the cuts are made force the servo into the neck with the connection wires in the slit until the servo mounts are flush with the top of the neck. Use a zip tie or two to hold the servo in place (Figure 7)



The final step in the assembly is to attach the skull to the servo. Before you do this, however, you are going to want to make sure that the servo is in its center position. Connect the servo to Pin 0 of the Prop-1 and download and run this [small centering program](#). It should move the servo to its center position and hold it there. You may have to adjust the center number a bit for your servo and you may want to install another temporary horn on the servo to more easily see the results. Turn off the power, disconnect the servo. Place the servo horn on the bottom of the skull firmly onto the servo being sure that the skull is approximately centered. Use a long handled screw driver through the hole on the top of the skull to fasten the horn to the servo. If you don't have a magnetic tipped screwdriver a drop of glue on the tip of the screwdriver will make this easier (Figure 8 shows a number of pictures of the servo/skull assembly).



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You can now reconnect the servo to the Prop-1 board and download and run this [simple test program](#). It will pan the skull left and right. Check the maximum left and right positions and adjust these numbers as needed. When you are happy with the results make a note of the maximums, they may or may not differ for each skeleton that you use. Click on Video 1 for a short demonstration of this test.

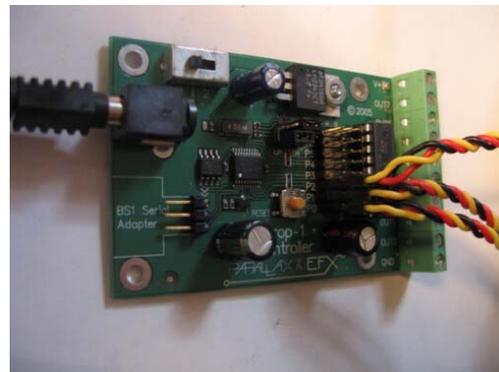
That's it for assembly. Repeat this process for each skeleton you want to make.

## Programming

The pBasic program to control the animation evolved from the excellent work of [Vern Graner](#) who wrote a program to control 6 servos. Basically his program will randomly set a destination for each servo and through each loop of the program it will move the servos until they are at that destination and then choose a new random destination for the servos. He managed to get fairly smooth parallel action on six servos at once.

The major difference between Vern's program and ours (besides that fact that we only use three servos) is that Vern's program all the servos appear to move at once all the time. As soon as a servo reaches it's destination it's given a new destination and it's back in motion. We thought that using this method for multiple bluckys would make them look a bit too hyperactive so we added a new random Chance variable. Once a servo reaches it's destination the program randomly selects a number between 0 and Chance. If the number matches the servo number a new destination is set and the servo moves; if not the servo maintains its current position. Each loop through the program gives the servo another chance. A higher Chance number means less chance that a servo will be in motion. A value of 199 means that there is only 1 chance in 200 that a servo will be given a new destination. This may seem like low odds but the program cycles fast enough to hit quite often. Click Video 2 to get some idea of what various Chance numbers can do.

The program code is available by downloading [Random Servos.bs1](#). Our servos are connected to Pins 0, 1 and 2 of the Prop-1 board (Figure 9). If you use different pins you will need to make changes to the program to reflect this.



Obtained from  
Omarshauntedtrail.com

## Using the Bucky's

Figure 10. Prisoners



By themselves the cheap blow mold skeletons don't look all that great. But with a bit of work they can make great props. In 2005 we used three of them with a bit of modification to the skulls and some old distressed clothing as prisoners in our dungeon scene. They will be used the same way 2006 but with the added animation (Figure 10). There are a lot of great how-tos available for improving Bucky's available.

**Suggestions For Improvements and Modifications** There are lots of ways that this basic technique could be enhanced. We only used three out of the eight pins on our board (we will be using the others for other aspects of the scene) so you could easily add more skeletons. Or you could add more servos to a single skeleton. Animate the arms or legs. Or add tilt as well as pan to the skull. The best thing about these cheap skeletons is that they are light and easy to modify. If you have other suggestions or have pictures of your animated buckys send them along so we can share them with others.

