

Skull pg 2

Transmitter Control

The skull is controlled remotely with an R/C radio control. I used a six channel Airtronics unit. I made some mods to the transmitter for this application - I took the return springs out of the sticks because I found it easier to control the skull in a lifelike manner if it did not snap back to "neutral" (looking straight ahead) when I let go of the sticks. This also allowed me to conserve the batteries by placing the skull in a pose and turning off the TX. As long as you don't move the sticks you can turn it back on and it will normally not move at all. I found it very effective to "pose" the skull, turn the TX off and when somebody came up the walk I'd move the sticks so the skull would move to look at them and then turn on the TX. As the transmitter turns on the eyes light up (if you have them turned on) and the skull turns very rapidly to the stick position you set. This gave people quite a start as the skull "came alive" and started talking to them !

The other mod to the TX was a direct input to one of the auxiliary channels via a 1/8 phono jack. What I had in mind was to build a circuit called an envelope filter to track my voice in real time - it gives a voltage output which is proportional to the volume of your speech. After looking at myself talk in a mirror for a while, I determined that your jaw opens generally in proportion to the volume of the sound your voice makes. So, if you use the envelope filter to control the jaw servo you get very lifelike jaw movement in exact sync with your voice. It actually did work but my envelope filter circuit was a bit too crude, causing the jaw to open and close a bit when there was no sound. I was running out of time so I decided to just animate the jaw with the left stick on the transmitter.

The Receiver and Eye Controls

The receiver was mounted to the back of the wooden "shoulders", as was the RX battery pack and a separate 1200mah battery pack for the eyes. I used 6V incandescent bulbs for the eyes which are bright but they use a lot of power. I subsequently found some very bright red LEDs which have an eerie laser look to them, they would have looked neat. I added control to the eyes with an on/off motor controller used for electric R/C airplanes. If you use an R/C motor speed control (used in cars and electric planes) you can get proportional control of the eye brightness which would be cool but I didn't have one.

The finishing touches were to add a robe, hood, a homemade reaper, and I used some cheesy plastic skeleton parts for the arms.

The sound setup:

I put a speaker under the robe so I could talk to the guests as they approached the Reaper. I wore a headset microphone plugged into my computer which has a Sound Blaster Live card in it. The SBLive has some very nifty real time effects - I used the pitch shifter to lower my voice about half an octave, and then I added some echo and chorus. I ran the output of the sound card to a 50 watt stereo amplifier and then to the hidden speaker. The result was an otherworldly voice which nobody recognized as me ! I stood by the door in the shadows so I could see what people were doing and saying but they couldn't see who was running the Animatronic Reaper. It was great fun to scare the bejeevers out of people as they walked up to the house and converse with them through the animatron.

I'm not sure what I'll do with the animated skull next year. It's a very versatile prop. I may go for complete computer control next year and have it just sitting on a gravestone talking and

laughing while I control some other diabolical new device...

