SCARY TERRY'S

http://www.scary-terry.com/scarycrow/scarycrow.htm

Scary Crow

At first glance, this is just a plain old scare crow, standing in the garden, not really doing his job, as he's surrounded by a half dozen crows.

All of a sudden, his head spins around and he turns into a giant "scary crow".

The surrounding crows' eyes pulsate a terrifying red glow, the Scary Crow raises into the air and thrusts itself toward the trick-or-treaters. His arms reach out as all the crows join in a chorus of scary crow sounds.

The following is a brief description of how the Scary Crow works. It was inspired by Deathlord's Exorcist which I saw in action at his annual gathering.

I'd also like to thank Brad Fraley for his terrific 4 Bar Linkage Simulation Program that really saved a lot of time and effort. Also, thanks to Spirit Kanaka for suggesting Cabela's as source for plastic crow decoys.

The Scary Crow consists of:

- 4 bar linkage made from 3/4" electrical conduit
- Counter weight: cardboard tube Filled with cement
- Paper mache head attached to a Rotary actuator
- Arm mechanism: pneumatic Cylinder with cable linkage

- Electronics board: Basic Stamp 2, three ChipCorders, wireless remote receiver, power supply
- Pneumatics board: regulator, solenoid valves
- Lighting board: relay and pulsating circuit

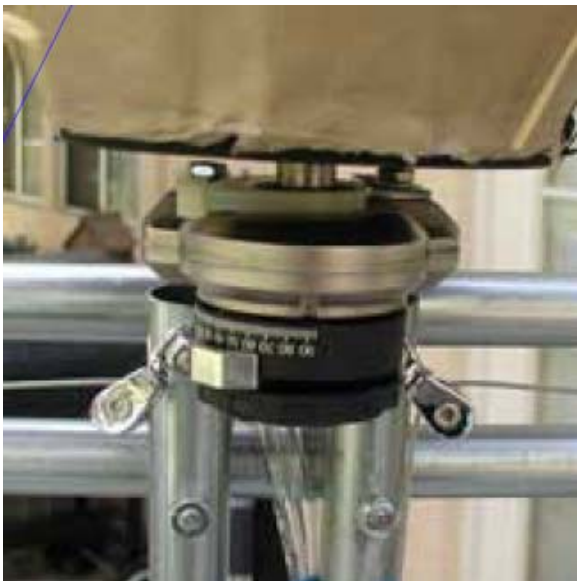
The 4-bar linkage consists of a pair of 2x4s in which a pair of 3/4" electrical conduit tubes pivot. I chose electrical conduit because it's fairly light weight, cheap, easy to work, readily available and strong.

The linkage is extended by a pneumatic cylinder with a 10" throw. The cylinder is assisted by a 22 pound counter weight that hangs off the top tube.

His total rise is about 28" and he moves forward about 18", but standing in front of him, it really has the effect of much more than that!

My wife made the head out of paper mache. It's built around a large plastic jar (Kirkland cashews) to make it easy to install on the rotary actuator (see below).

A rotary actuator is just a pneumatic cylinder that rotates. I got this one off Ebay for about $15. It has an adjustable angle of rotation, but I use it for the maximum 180 degrees.



I attached the jar lid to the top of the actuator so the head will just thread on.

The arm mechanism consists of a single pneumatic cylinder (4" travel) with cable linkage to the arms by way of a pair of pulleys and a spring eturn on the arms. This set up works very well, keeps the weight to a minimum and keeps the center of gravity fairly low.

At right is a back view of the right shoulder showing the return spring. The flat aluminum bar is a guard to keep his shirt out of the mechanism.

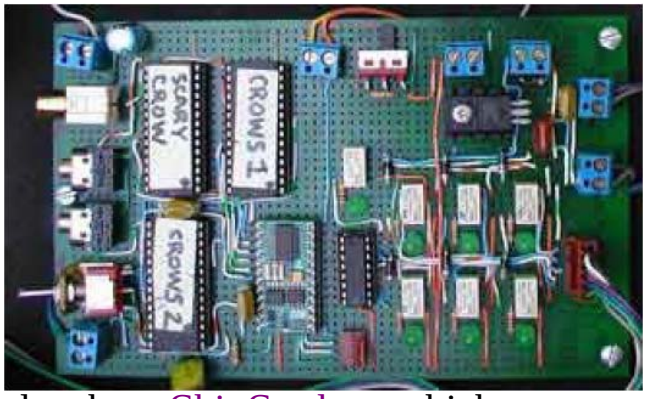
In this picture is a close up of the left shoulder mechanism.

Here is one of the pulleys.

Left is the top of the Cylinder and the cable attachment.

Below is the cylinder mount.

At left is the electronics package. It consists of a 5/24 volt power supply (upper), a receiver for the remote (right) and the main circuit board.



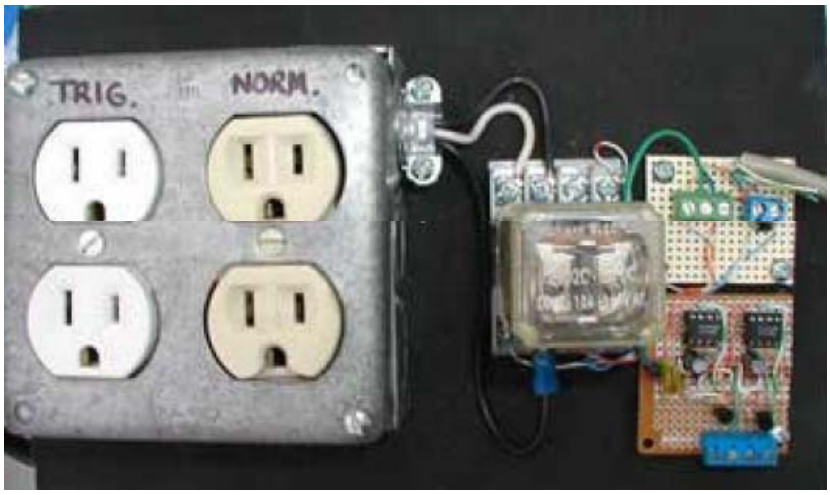
At right is a close up of the main Circuit board. It's based around A Basic Stamp 2 (lower part of board, left of center). It also includes three ChipCorders, which provide sound for the crows and the Scary Crow, seven relays for control of lights and solenoid valves and a 12 volt regulator for the remote receiver.

To the left is the "Ebay special" pneumatic control board.

I purchased the solenoid valves over a period of several months off Ebay and that's why there's such a variety. All the valves are 24 volts.

The main lifting cylinder Requires about 38 psi, the arms and head require lower pressures and therefore have flow limiting valves.

At right is the lighting control board. Normally, the Scary Crow will be lit with dimmed white light. When triggered, the lighting will change to red (or whatever looks the scariest).



The crows that will be surrounding the Scary Crow are from Cablea's. They're very nice, full sized, hollow plastic birds. They have led eyes that were fairly easy to install. The lighting board has circuitry that pulses the eyes when the effect is triggered. If you've got questions or comments on this project, feel free to contact me.