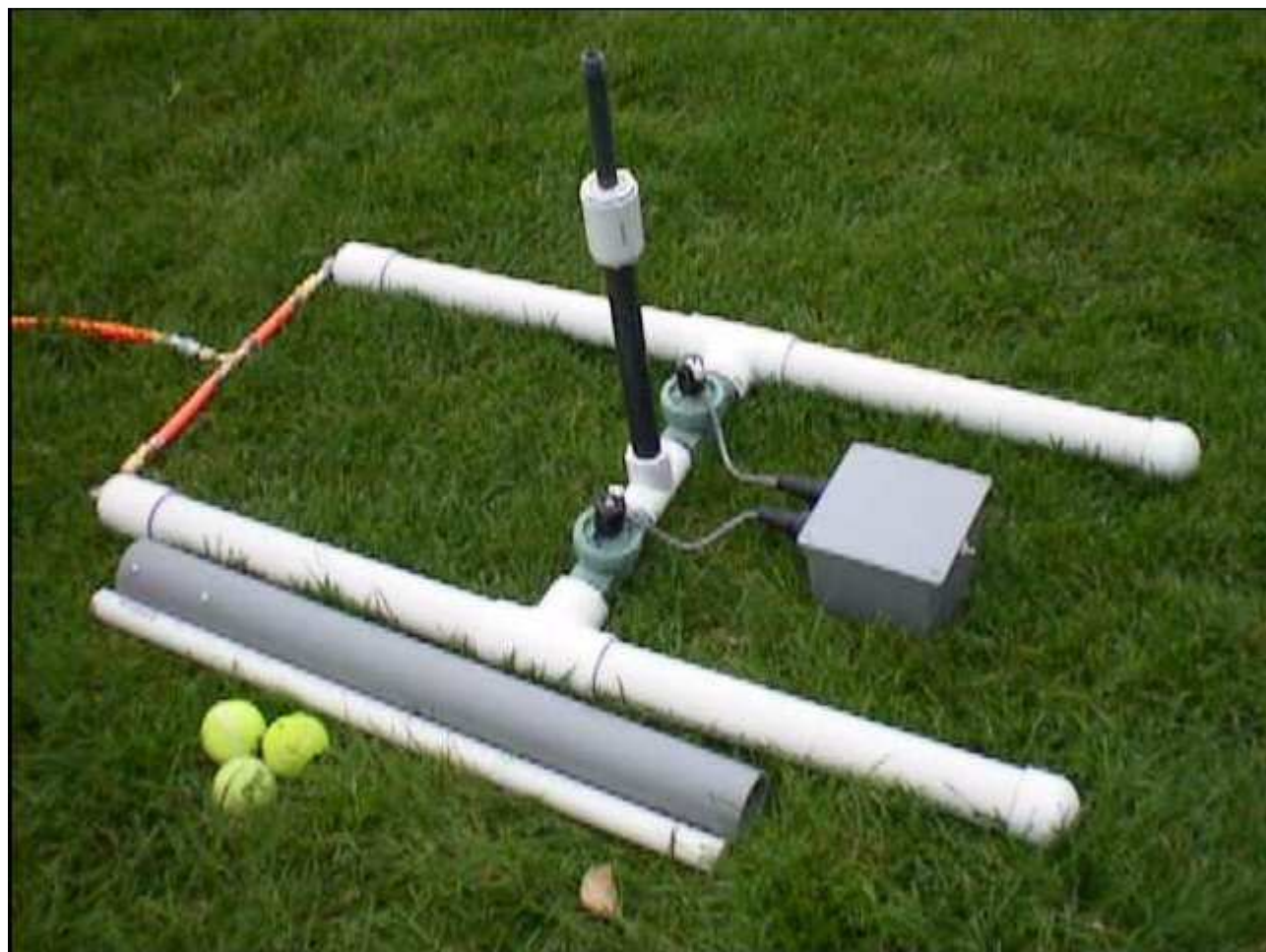
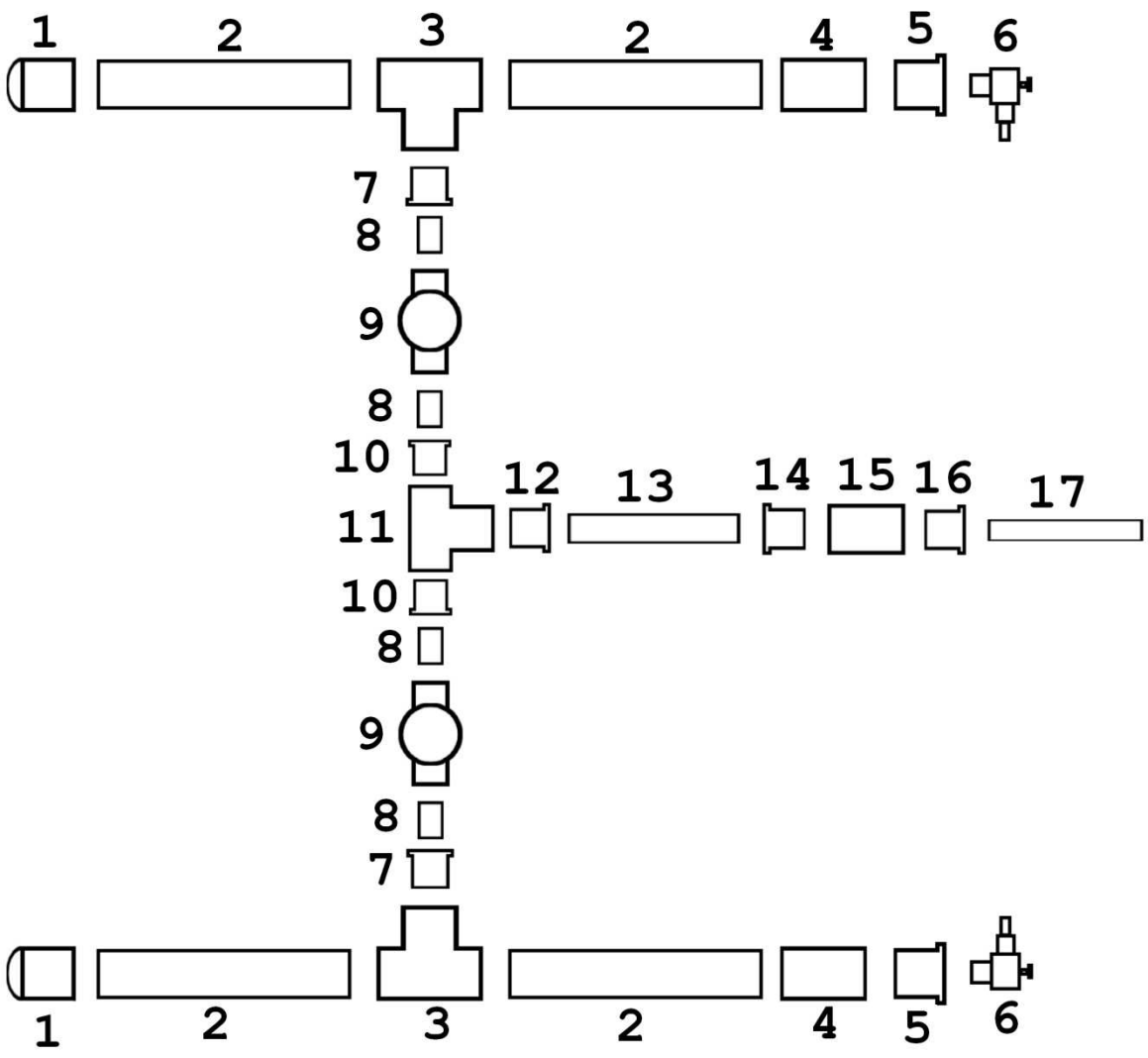


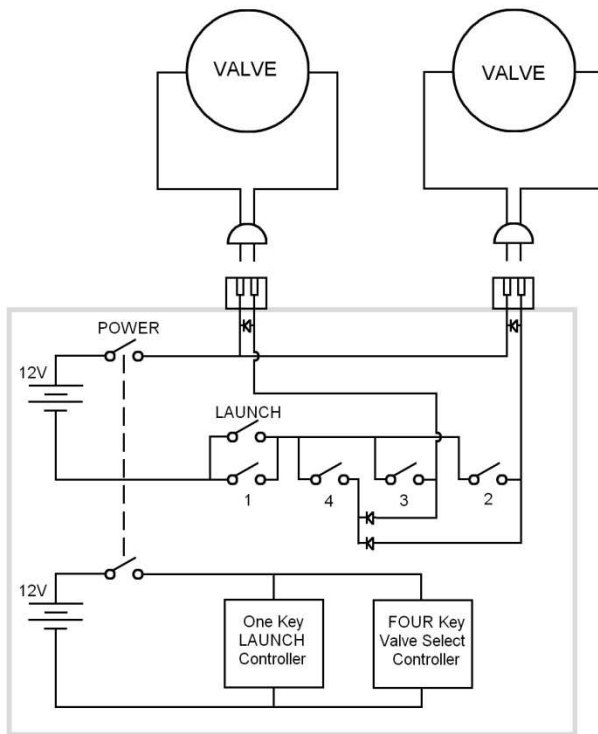
Enclosed are details on constructing a water bottle rocket launcher.



- 1 - 2" CAP
- 2 - 2" X 20" PIPE
- 3 - 2" TEE
- 4 - 2" COUPLER
- 5 - 2" X 1/2" FNPT
- 6 - 1/2" ELBOW SPEED FITTING
- 7 - 2" X 1" FNPT ADAPTER
- 8 - 1" RISER
- 9 - 1" SPRINKLER VALVE
- 10 - 1-1/4" X 1" FNPT ADAPTER
- 11 - 1-1/4" TEE

- 12 - 1-1/4" X 1" FNPT ADAPTER
- 13 - 1" X 12" RISER
- 14 - 1-1/2" X 1" FNPT ADAPTER
- 15 - 1-1/2" COUPLER
- 16 - 1-1/2" X 1/2" FNPT ADAPTER
- 17 - 1/2" X 6" RISER





Parts List

Water-tight connector - Digikey.com, 708-1143-ND

Water-tight plug - Digikey.com, 708-1107-ND

Battery holder - Digikey.com, BH48AAL-ND

One Key Remote control - Dinodirect.com, SKU:A1485000EH

Four Key Remote control - Dinodirect.com, SKU:A1485000JF

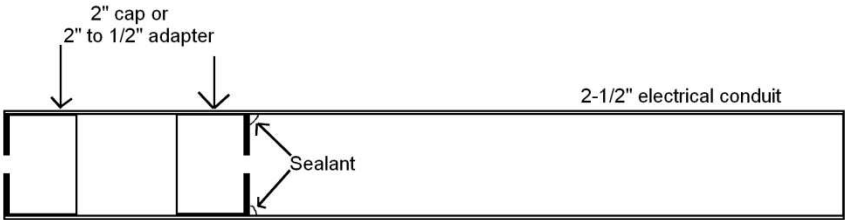
Water-tight box - Local hardware store

DPDT switch

This circuit uses two separate battery packs so that the coil circuit doesn't induce spikes into the controller circuit. The diodes are to enable relay #4 to trigger both valves with one button. I used 1N4003 diodes.

For the tennis ball launcher, take a piece of 2-1/2" electrical conduit and two 2" PVC caps or adapters. If you use caps, you'll need to drill a hole and tap it for the 1/2" riser to fit into it. I had to shave the edges off of the adapters to get them to fit into the conduit. Attach one of the adapters to a 1/2" riser and insert it into the conduit so that the adapter is far enough in to be secured to the riser when the conduit is 'screwed' onto the launcher's riser. Attach it with screws. Insert the other adapter into the end with the riser sticking out and attach it with screws, also. Put plenty of sealant on the inner adapter to keep air from leaking out the bottom.

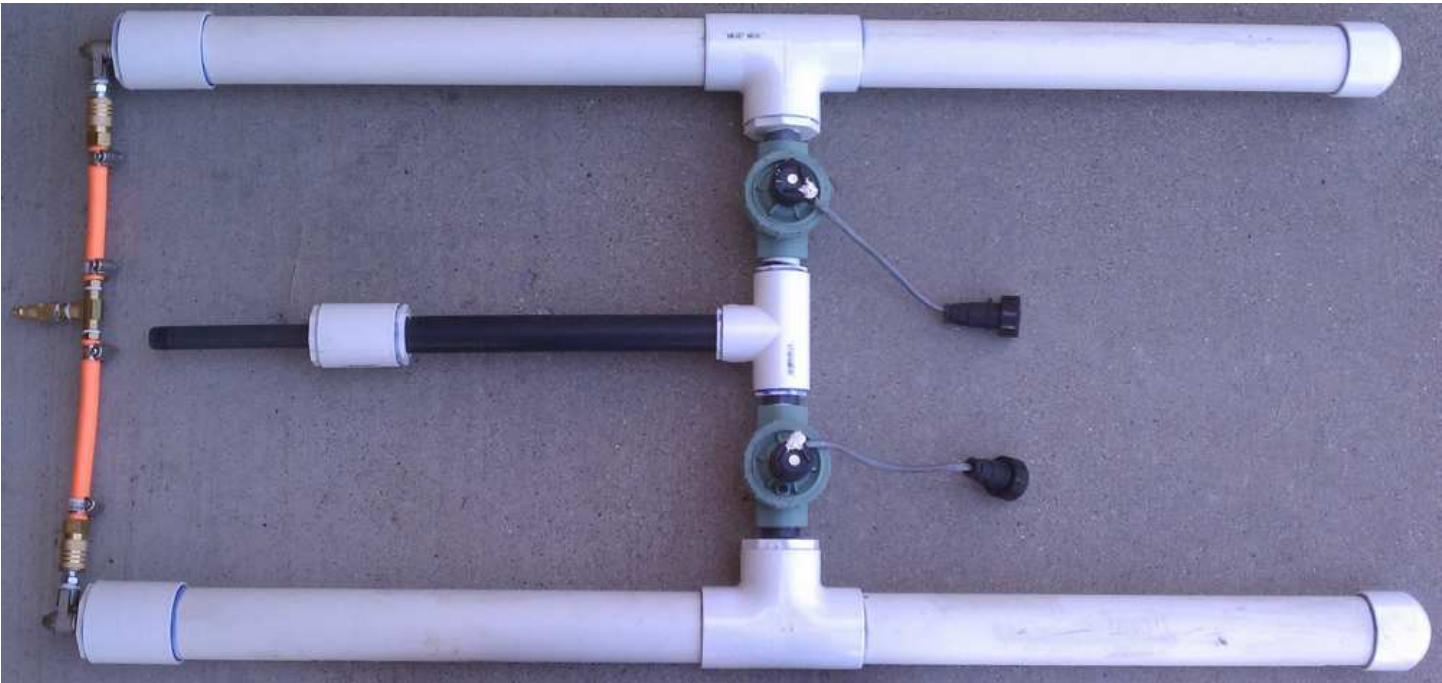
When we're done launching rockets, I can screw this conduit onto the launcher's riser and stuff up to six tennis balls into it.







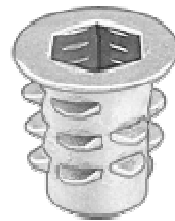
Folded down for storage



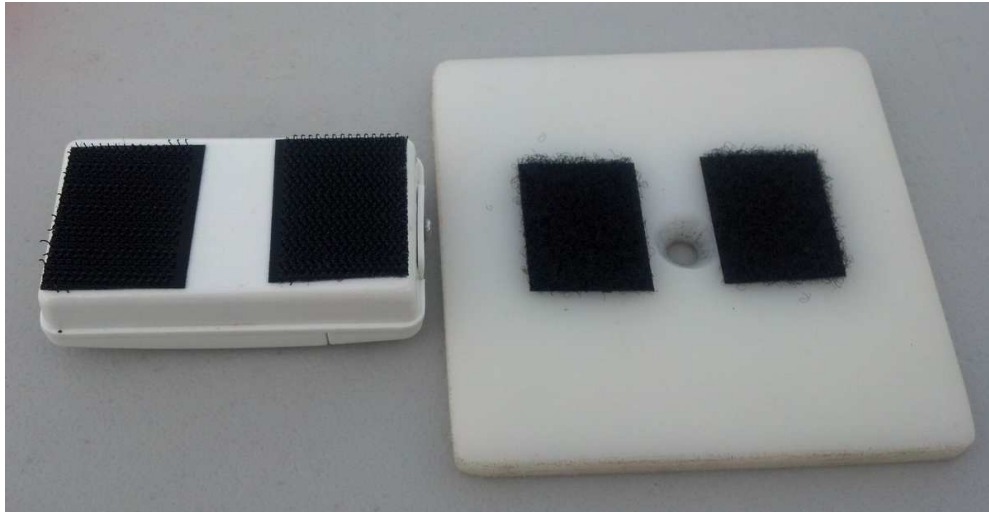


Four way remote to control which valve will dump the air. The circuit allows either side or both sides to activate when the launch remote button is pressed. (Pictured below)





These photos show the dowel that I use to mount the launcher remote onto. I have a Hex Drive insert in the end of a dowel. I bought a pipe cap that would fit over the end of the dowel so I could drive the dowel into the ground without damaging the end. The cap photo shows that I needed to file the threads down in order for it to fit.



I use Velcro to hold the remote onto a plastic piece that is held onto the dowel.