

Space Invaders

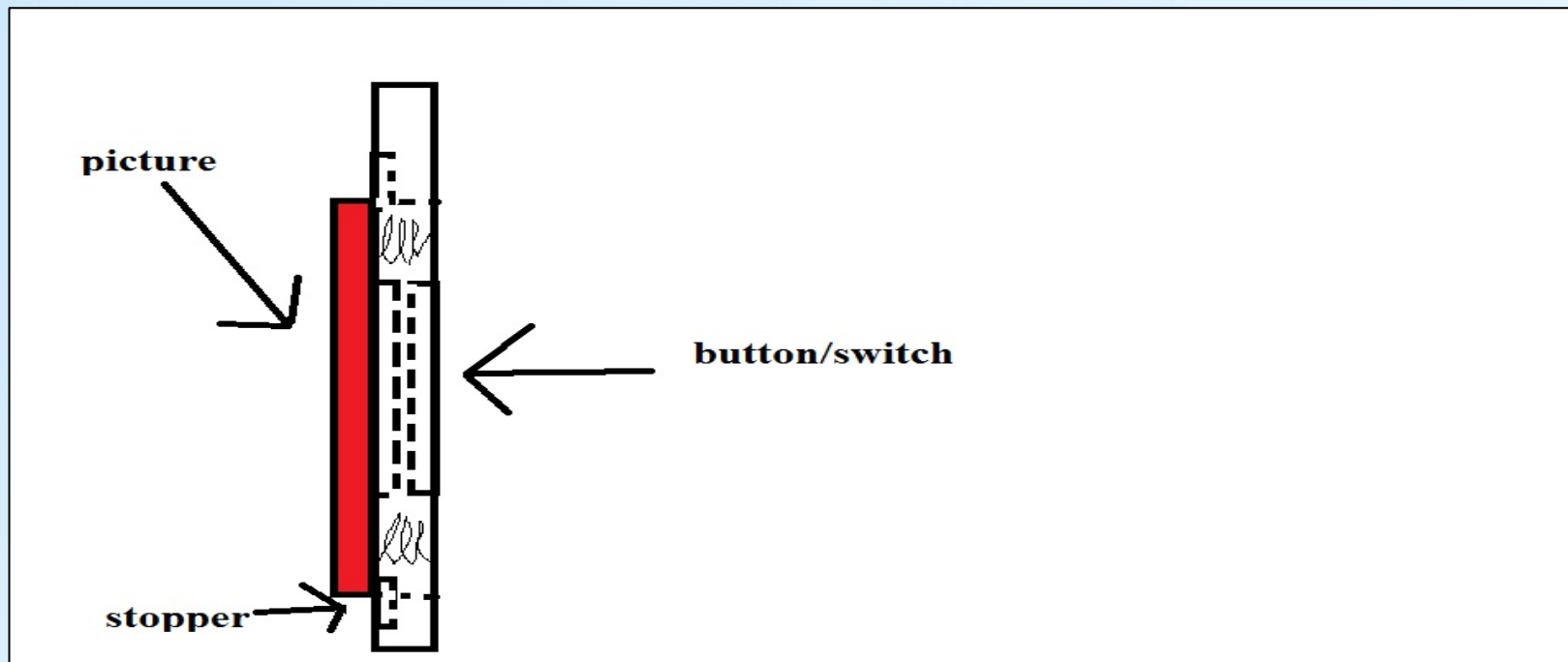


2.0

Introduction:

As the game begins, players will be asked to side with either humans or space invaders. Players will then attempt to knock down as many of the other species' targets before the timer runs out... But be careful not to knock down targets of your own species!

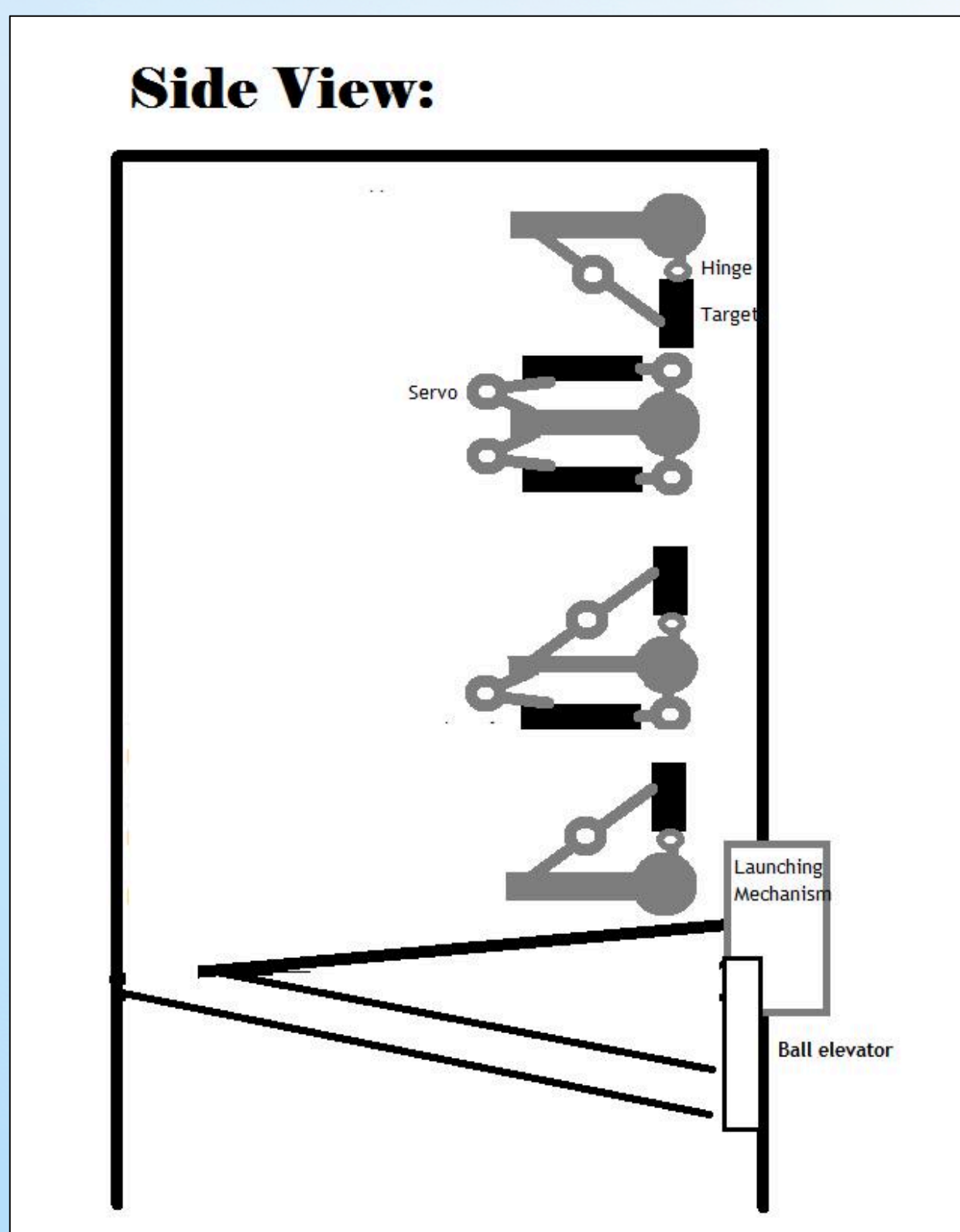
Switch Mechanism



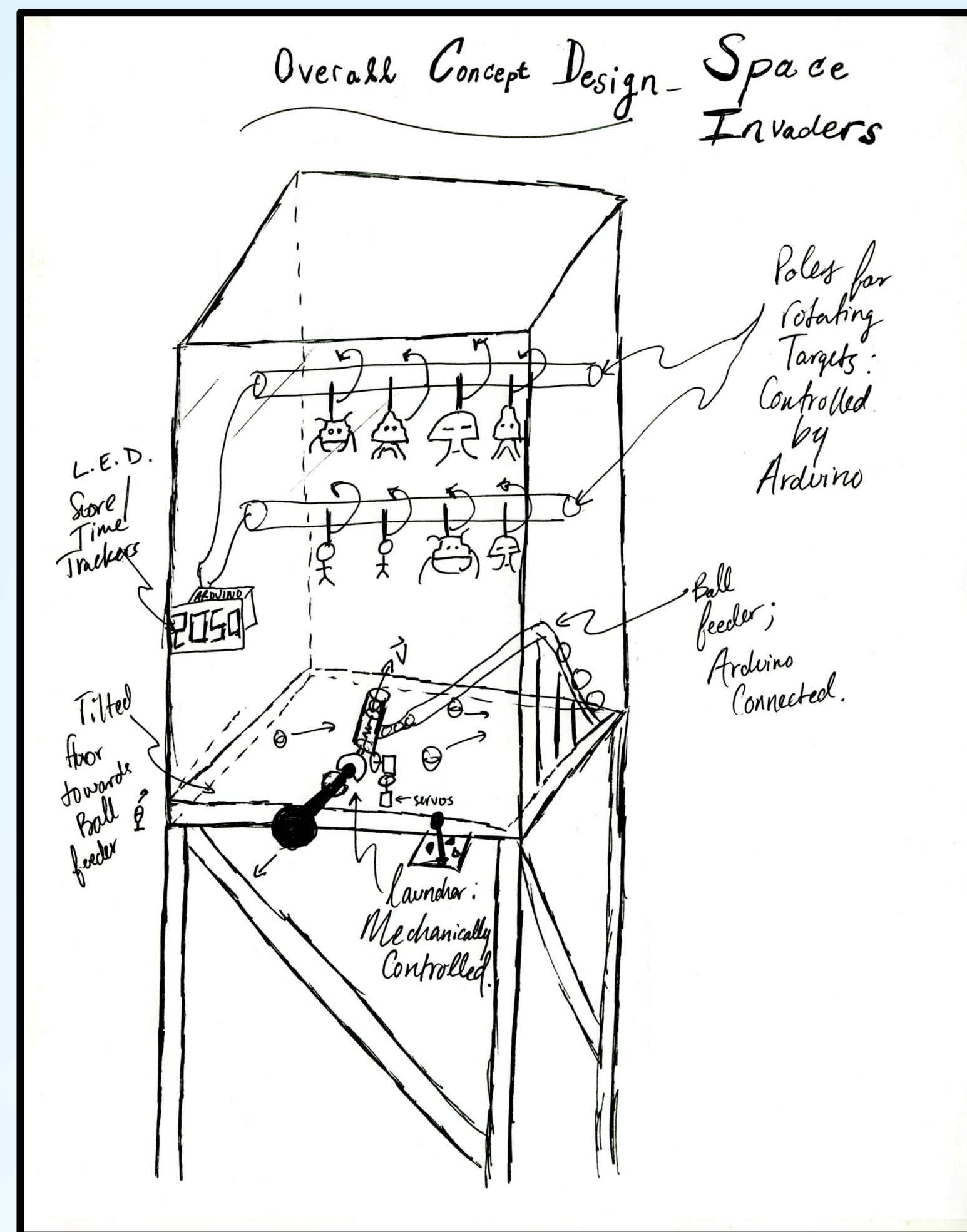
Targets:

Two targets will be attached to each location on the track. This two-tiered design gives the option of having either a human target or an alien target in any place, at any time. The targets on the underside of a track are humans, while the targets on the top of a track are aliens.

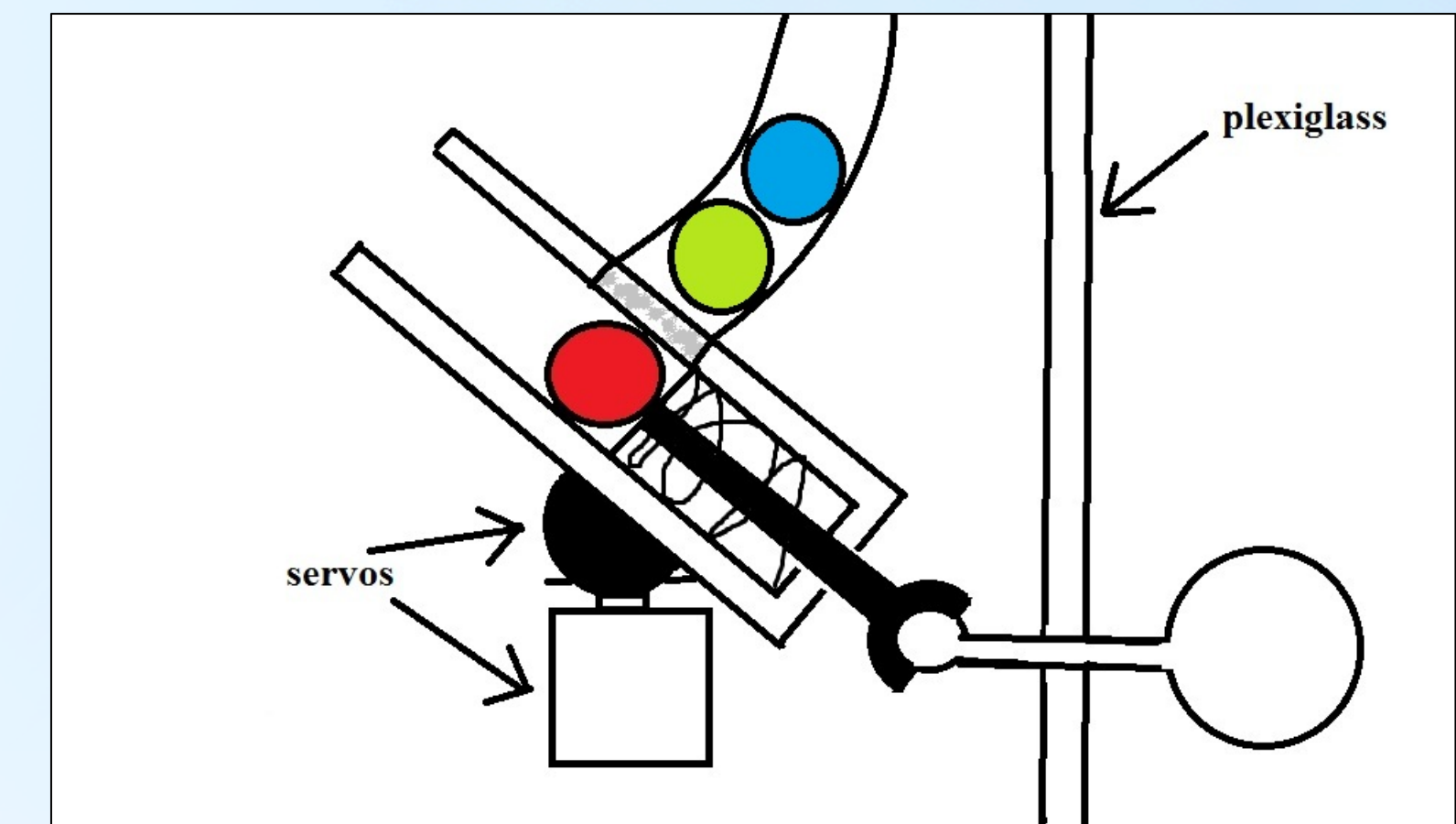
Side View:



Compiled Concept Sketch



Ball Launcher

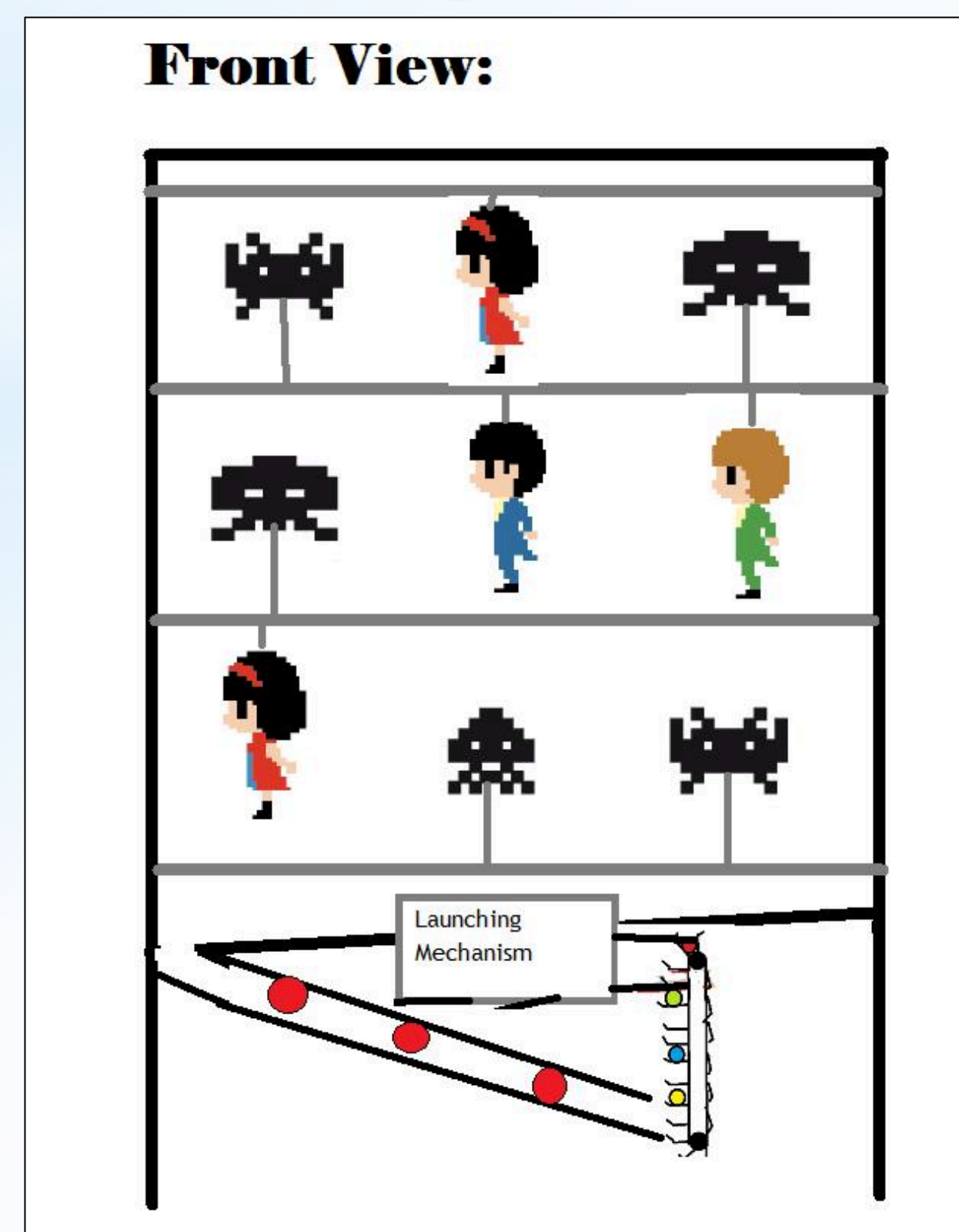


Ball Launcher:

The ball is loaded by the feed tube when the handle is pulled back. The ball is then launched when the handle is released. The handle is attached to the launcher by a ball joint. This allows the launcher to move while the handle intersects the Plexiglas at the same point at all times. This means the game will be sealed; players can not reach in to push down targets for easy wins. Lastly, servos will position the launcher (with one in the xy-plane, and a second in the xz-plane).

Targets

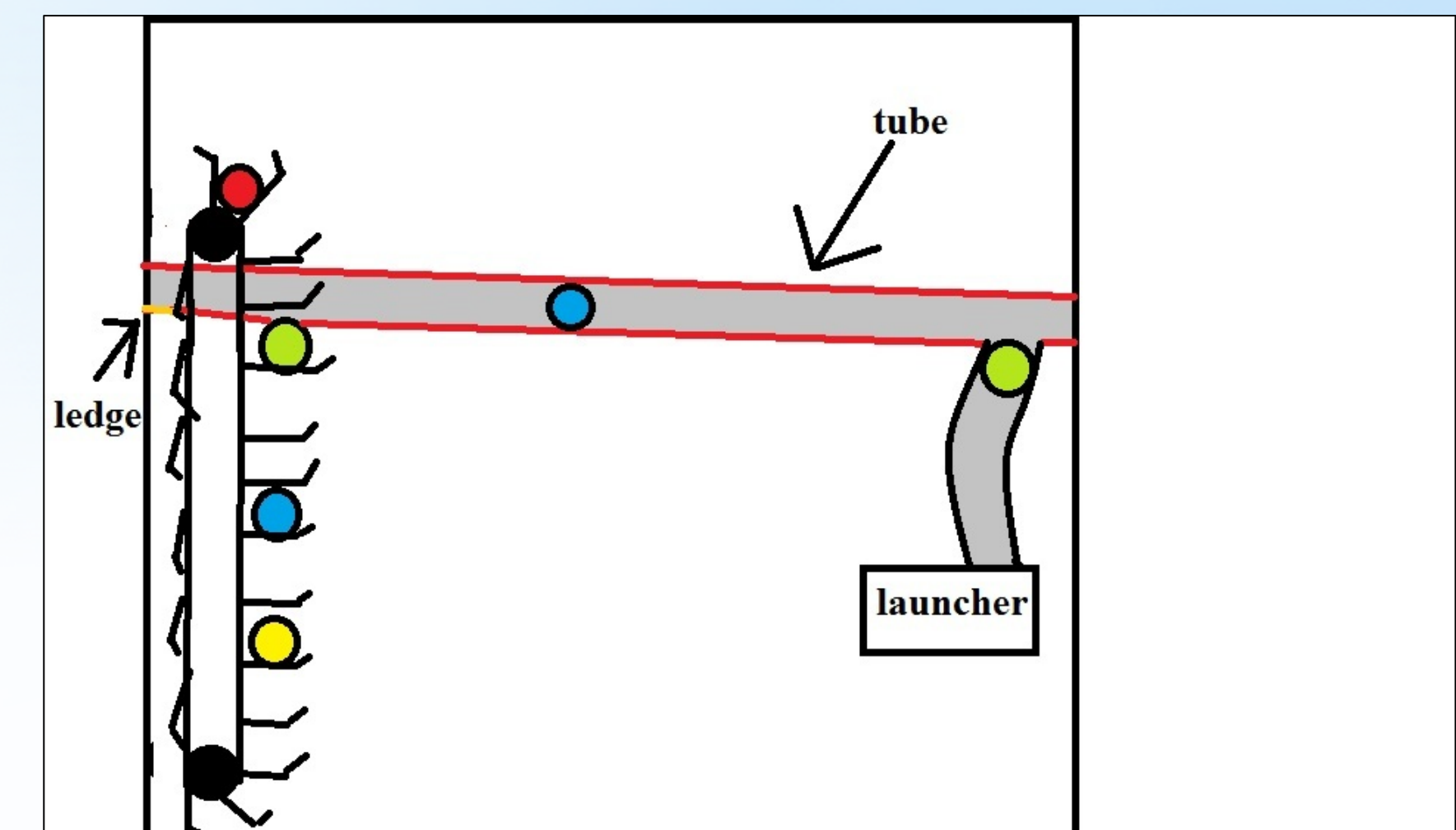
Front View:



Side View:

The targets will be servo-motor controlled. These servo motors will be attached to an Arduino, which will determine which targets must be up and active at any given time. When an active target is hit, a switch will trigger the servo motors to fold it backward, as shown.

Ball Feeder



Ball Feeder:

Balls collected from the upper-left corner of the inclined platforms will be scooped up by the metal loops (as shown). These loops will act like conveyer belts to deliver the gumballs upwards. Once over the peak of the conveyer belt, the balls will land on the orange track and roll down the red pipe. At the end of the red pipe, the ball will enter and refill the launcher. Additionally, the loops will flip and make contact with the belt upon reaching the peak of the conveyer belt (think of the loops as on a hinge with a stopper, which lets them lay against the belt).