

## Homework 1: Initial Design

Brett Daniels

The primary goal of Beer Pong is to get a ping pong ball into a cup on the other side of the table. There is also the objective to swat bounced balls. The design drawn in Figure 1 shows an initial concept of how the beer pong machine could look. The cylinder of balls insures that balls will not interfere and cause a jam. The paddle regulates the balls falling into the launcher. The way that the balls will be launched is by the wheel. The wheel will be predictable and adjustable to aim at different cups. The wheel will also give the ball a forward spin which will make the balls trajectory more predictable. The launcher will move side to side on guide rails and will be pulled by a belt. A swatting stick will be mounted to the side to side platform so that it can maneuver to the correct position to swat an incoming bounce shot.

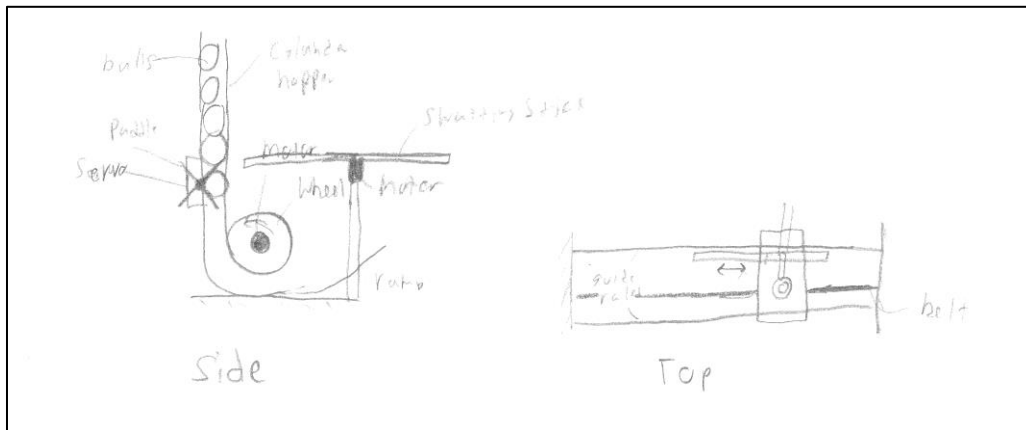


Figure 1: Design drawing

The block diagram in Figure 2 shows the signals and reactions to signals the system will have. Software will detect if it is their turn and act according to the block diagram.

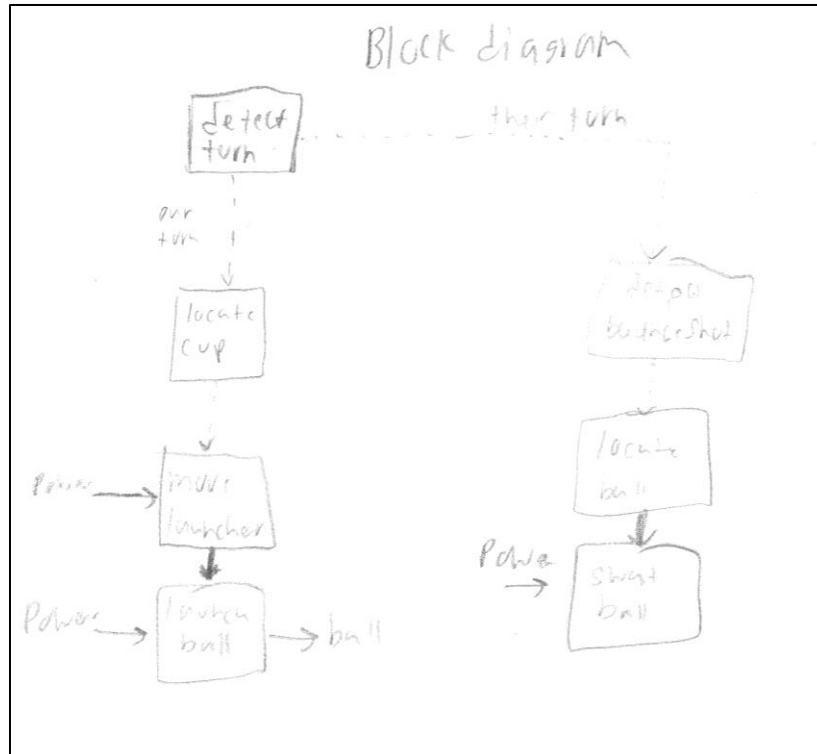


Figure 2: Block diagram

The logic flowchart is drawn in Figure 3. It demonstrates the logic that will determine who's turn it is and what to do in those conditions.

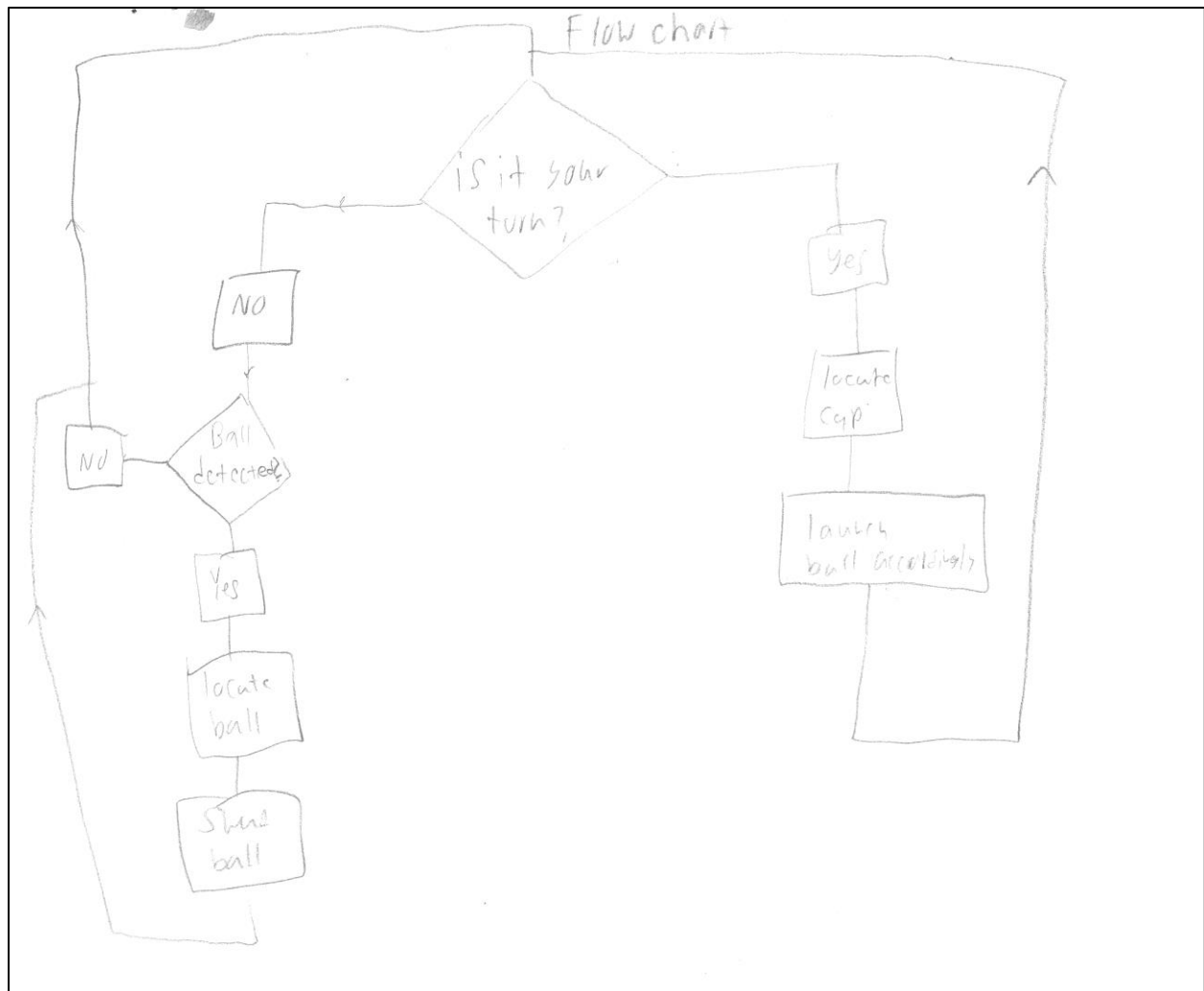


Figure 3: Logic flowchart

The team will be divided by each member's major with some overlap. Brett Daniels will handle mechanical systems, Sean Rettig will handle code, and Martin Ambros will handle electrical systems. Our initial plan of action is to begin to implement the ideas that we have agreed on from preliminary meetings. Brett Daniels will form the BOM and design a 3D model. Martin will begin researching computer vision and working on motor control. Sean Rettig will begin working on the logic and interactions between computer vision and the rest of the robot.