

# Robockey Design Plan

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## Mechanical Design

We will build three robust robots, keeping wheels within an enclosure to protect them from game play damage. We will have the base level for the motors, a second level for the battery pack, and a third (and maybe fourth) level for perf boards. The levels will be separated by standoffs. We're keeping the batteries on an upper level as opposed to on the side so that we don't have too much weight on one side. We want perf boards to be on the highest levels so that we can easily get to them for flashing, troubleshooting, etc.

## Actuators and Sensors

The "front" area of our robot will have an inlet to secure the puck, while abiding by the 20% surface area rule. There will be one IR phototransistor facing forward, which will be used to direct the robot towards the puck. An actuator will be positioned to slap a puck held in the inlet. There will be phototransistors on either side, which will tell the robot which way to turn if the front phototransistor does not see the puck.

## Gameplay Strategy

We're going to have one goalie and two strikers. Our goalie will be positioned in front of our goal. Its wheels will be oriented such that the goalie moves laterally relative to the goal. It will have a number of IR phototransistors on its side (facing the rest of the rink), which will let it know where to go in order to block the oncoming puck. Our primary striker will look for the puck and move towards it until it gains possession via the inlet. It will then move towards the enemy goal. Our shooting strategy will have our primary striker attack the goal from an angle. This will increase our chances of scoring since the puck could bounce off the enemy goalie and into the goal. Our secondary striker will move toward the enemy goal and try to push the enemy goalie away, leaving full room for the primary striker. **Is this allowable?** If this isn't permitted by the rules of the game, we will just have it serve as a helper goalie, while the primary striker tries to get the puck. If the secondary striker hears that the primary striker has stopped moving (maybe caught in a jam with an opposing striker), it will execute the same function of the primary striker, i.e. finding the puck and heading for the goal.