# Description:

So as of right now the basic Idea is to build a table, with a minimum of 10 cups per side in an arrangement. The cups would sit over sensors, and depending on the state of the sensor, the RGB LED Under the cup would change state.

We have many choices for the light. We could have the light be off when no cup was present. We could also have it set to a different color. My thought was to have the first cup down decide the color.

# Scenario:

Player A approaches the table. The 10 different areas are illuminated in different colors. He can select his color by placing a cup down on the table. At this point, all other cups spaces on his side will become the missing cup setting. As more cups are placed, the cups will match the chosen color. Player B will have the choice of color as well (minus the choice made by player A). Once this has been completed the game is configured and ready to start.

Player A and B are arbitrary except for technically A is whomever places their first cup down first. Due to the new idea of having any configuration of cups allowed, you can keep placing cups until all the positions are filled.

One player will start. As cups are eliminated and are removed from the playing field, the sensors will be notified, and the board will change in configuration.

# Thoughts:

We could have a start/reset panel. This will almost certainly be necessary.

(Dave : What do you mean by panel?)

How about a button for rerack, so it knows you are going to reconfigure the cups?

We could follow the lead of the original video I sent you and have it wait a certain amount of time when there are no cups on to make it reset for cup reconfiguration. The score could stay on what ever display we decide to display it on until another cup is placed on the board (so once one game is over the next starts once all cups are removed and a new set of cups it placed). This may also be a better solution than a button because it would make the state machine easier because that way you can’t push the button and still have the cups on the table which would be confusing for choosing colors.

Scoring?

1 point per cup removed, counting up to a maximum score for how many cups are placed (possibly display the maximum score in another section of the scoreboard). Otherwise have the scores count down, starting at the maximum score, going down to zero (this may be an unpopular scoring system with drunks as the person with the lower score wins, confusing when intoxicated).

Ball return?

Should this be a secondary/after we’re done kind of thing, unless we can incorporate the microcontroller I feel like too much thought could be put into this that wouldn’t have a large effect on our grade.

We could either make the table

* From wood with clear spots for cups
* All out of plexiglass/acrylic
* From wood and just put raised areas for cups
* Etc

I think wood would be easiest, but whatever we use under the cups we have to make sure the photoresistors or other cup detection system can operate with that material.

# Inspirational Videos

[http://www.youtube.com/watch?v=7YQsiwCtbpU&feature=player\_embedded#](http://www.youtube.com/watch?v=7YQsiwCtbpU&feature=player_embedded)!

<http://www.youtube.com/watch?v=P4l2JB2dj3M&feature=related>

<http://www.youtube.com/watch?v=bnzt0hOPn2c&feature=related>

<http://www.youtube.com/watch?v=Dbr8TPzKBvU&feature=related>

<http://www.youtube.com/watch?v=VoiDI3frg1Y&feature=player_embedded>

<http://www.youtube.com/watch?v=9yJNW4dUDGQ&feature=related>

[http://www.youtube.com/watch?v=XTvq3pgdIo0&feature=player\_embedded#](http://www.youtube.com/watch?v=XTvq3pgdIo0&feature=player_embedded)!

<http://www.youtube.com/watch?v=CL1y27ucicY> !

# Parts

## LED

### Triple Output LED RGB – Clear - $2/each

<http://www.sparkfun.com/products/105>

<http://www.youtube.com/watch?v=2Rm2VQqJ2tk>

### Piranha RGB - $25 for x50

<http://cgi.ebay.com/50X-PIRANHA-RGB-5mm-LED-Lamp-8Kmcd-COMMON-ANODE-/250521979489?pt=FR_JG_Auto_Tuning&hash=item3a54460a61>

## Sensors

<http://www.hacktronics.com/Sensors/Photoresistor-Light-Sensor/flypage.tpl.html>

(Expensive, but good resistance range [5k light – 20M dark])

<http://www.sparkfun.com/products/9088>

(Ok price, bad resistance range [1k light – 10k dark])

<http://search.digikey.com/scripts/DkSearch/dksus.dll?Detail&name=516-1719-2-ND>

Do we have to buy at the price breaks? Why would they give those prices? Not sure which values on the datasheet to use to calculate resistance.

<http://search.digikey.com/scripts/DkSearch/dksus.dll?Detail&name=255-2655-ND>

(Expensive more than hacktronics, but good resistance range [~6k light – 20M dark] had to do the math from the datasheet on this one)

<http://www.parallax.com/Store/Sensors/ColorLight/tabid/175/CategoryID/50/List/0/SortField/0/Level/a/ProductID/175/Default.aspx>

Ok price, resistance range seems ok [~50k – 2M]

<http://www.surplus-electronics-sales.com/Zencart/index.php?main_page=product_info&cPath=26&products_id=266>

<http://iteadstudio.com/store/index.php?main_page=product_info&products_id=2&zenid=gsfotf3jbq3akqp1o8t8aurq53>