Requirement List:

IC:

* LM7805
* NE555N x3
* SN74163J
* SN74LS138N
* D004D7406N
* SN74LS08N x2
* 22 micro F
* 100 micro F
* 7 red led
* 1 yellow led
* 2.2 k ohm x2
* 1 k ohm
* 47 k ohm
* 3.3 k ohm
* 330 ohm x8
* Push button

Board must be:

* 10 cm x 10 cm
* Under $6 for microcontroller design (“6 bucks per unit in quantities of 100”
* Surface mount
* Battery, coin cell
* Artwork, Umass logo, Department name
* Capacitive touch push button for micro design
* Document everything – such as programs used, data sheets looked at
* Self-latching power supply (2nd version)

1st Part of Project Requirements

**Goal: Recreate catch the light board and document / understand how it works.**

* Board size 10 x 10 cm (Have the right to make it bigger depending on whether we can fit it or not)
* Total of 8 LEDs with 7 being red and 1 being yellow.
* All surface mount components
* Available funds: Not specified
* May or may not be manufactured (Upon customer request)
* Pushbutton with external connections
* Documentation / Explanation of how the original device operates.
* Documentation of every breadboard connection (using Fritzing)
* Redesign schematic in Eagle
* Pick and place machine must be utilized
* Recreation of original game must be discrete and the use of a microcontroller is not permitted
* \*\* Include list of IC chips that we plan on using \*\*
* 12 V constant power supply

2nd Part of Project Requirements

**Goal: Create the cheapest possible game using the Atmega328PB microcontroller**

* Board size 10 x 10 cm
* Artwork that will be present on the board consists of Arnie Logo, ECE / Computer Engineering Department name, name of the game.
* Powered by a coin cell battery
* Self-latching power supply
* Capacitive touch button