

Electronic Pong

Description

Using the MSP430, this project will emulate the classic college party game, beer pong. Players will attempt to throw a ping pong ball into an arrangement of cups, trying to be the team to make all 6 of their cups before their opponent. The MSP430 will keep track of the score, handle any user input, and also handle any special cases during game play.

Hardware

- MSP 430 – keeps track of score, rules, etc.
- 12 tri-colored LEDs – light cup up either red or green depending on the state of the cup (2 points)
- LCD display – Display score, and other messages (3 points)
- Photo Diodes – used to detect if a ball was sunk into a cup (2 points)
- Audio component – used to playback sounds during certain events (2 points)
- 6 + buttons – for overriding or entering commands to the system (1 point)

MSP430

We will use the MSP430 to control all other hardware devices in conjunction with C code to complete the project. There are many inputs and outputs, so we will utilize all the I/O pins available. We will also use the on board timer, to address the “switch bouncing” of a ping pong ball rolling around inside of the cup creating multiple hits. The DAC will also need to be used for audio if time permits.

The Cup

Each team will need to sink 6 cups to win. Each cup will be fitted with hardware that allows it to interface with the MSP430. A small mechanical funnel will be added to the bottom of the cup, to ensure the ping pong ball stays in the middle. Aimed up at the funnel will be a photodiode which will send an interrupt to the MSP430 when the light entering it changes significantly. Also inside the cup will be a tri color LED. The color of the LED will reflect if the cup has been made already or not. The LED will also be connected to the MSP430 as an output.