**HW #2: Project Proposal**

**Useless Box!!**

The design is a simplistic 3.5"x4.5"x3.5" box with a switch on the lid.

**Must**

* Have a box
* Have a switch
* Have a servo
* Have a battery

**Can**

* Have a second, hidden, switch for power turning the lid switch into a signal
* Have Motors and hidden wheels to create an interactive experience
* Have a second servo to make movements more distinct (one lifts lid, second flips switch)
* Have a Gyroscope to sense direction and speed for greater control on interaction.
* Have a proximity sensor to stay on the table

**May**

* Add LED/LCD/OLED display programmed to express emotion

The box itself will listen for or be powered by a switch on the lid, which will cause a compartment on the lid to lift, and allow a servo controlled "finger" to be revealed and flip the switch back to the original position for an indefinite number of times. The project can have it's difficulty scaled up from there to include extra sensors, servos, and motors for a more complex movement and interaction experienced by the operator. It also may have peripherals such as LED displays to create a character out of the box and give it emotion.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | difficulty | programming difficulty | circuitry | Mechanical difficulty | research | Scalability | cost |  | scale |
| rudder pedals | 6 | 7.5 | 6 | 7 | 3 | 1 | 5 |  | 1. so simple a child can do it |
| transformer soft start | 8 | 3 | 8 | 5 | 10 | 3 | 10 |  | 5. Easily doable by a EE Jr. |
| transcranial mag ther | 10 | 10 | 10 | 6 | 10 | 10 | 10 |  | 10. Research level engineering |
| mobile charge det. | 7 | 5 | 8 | 5 | 6 | 1 | 5 |  |  |
| slot cars | 7.5 | 3 | 8 | 8 | 4 | 1 | 7 |  |  |
| useless box | 5 | 3 | 3 | 6.5 | 3 | 1 | 4 |  |  |
|  |  |  |  |  |  |  |  |  |  |
| critera priority: (rated highest to lowest) | 7 | 3 | 2 | 1 | 4 | 6 | 5 |  |  |