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# NES LockBox

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# Marketing Requirements

## Must

1. Be powered by a 12V/1A wall adaptor
2. Have an LCD for user feedback
3. Have a unique code to unlock
4. Use an NES controller for user input
5. Follow design specifications laid out by practicum rules

## Should

1. Accept user determined combination

## May

1. Have multiple ways to unlock the box
2. Have a back up battery
3. Be user upgradable

# Engineering Requirements

## Performance

* Must be able to accurately interpret user input code
* Will only unlock if correct passcode is entered

## Functionality

* Interface with NES controller
* Display output on LCD screen

## Energy

* Must operate on 12 volt regulated DC power
* Should not draw more than 1 A of current

## Cost

* Per unit cost shall not exceed $75.00 USD

## Environmental

* All efforts shall be used to make the box from recycled materials

## Health and Safety

* Will not cause the user harm

## Manufacturability

* The circuit will have at least 25% surface mount components
* The circuit will fit on a 2-layer PCB with solder mask and top side silk screen
* The box shall not exceed 1ft3 in size

## Operability

* Is operable by any person old enough to handle a video game controller

## Reliability

* If time allows we will like to add a backup battery and a way to unlock if user forgets combination.

## Usability

* The average user should be able to learn how to use the product with ease

# Justification/Comparison Table

|  |  |  |
| --- | --- | --- |
| Marketing Requirements | Engineering Requirements | Justification |
| 3 | Must be able to accurately interpret user input code | *In order to consistently unlock the box, the code must be interpreted correctly* |
| 4 | Interface with NES controller | *The NES controller is the form of user input selected for unlocking the box* |
| 2 | Display output on LCD screen | *LCD will be used to display to the user whether input is correct* |
| 1 | Must operate on 12 volt regulated DC power | *We already are in possession of a 12 volt wall adapter which can only source 1 A of current.* |
|  |  |  |
| 6 | Will not cause the user harm | *People won’t want to use something that hurts them* |
| 6 | The circuit will have at least 25% surface mount components | *This is a requirement for practicum* |
| 6 | The circuit will fit on a 2-layer PCB with solder mask and top side silk screen | *This is also a requirement for practicum* |
| 4 | Is operable by any person old enough to handle a video game controller | *The interface is a simple NES controller, that most people already know how to use* |
|  | The average user should be able to learn how to use the product with ease | *The simplicity of the user interface will allow the user to intuitively know how to operate the lock box.* |