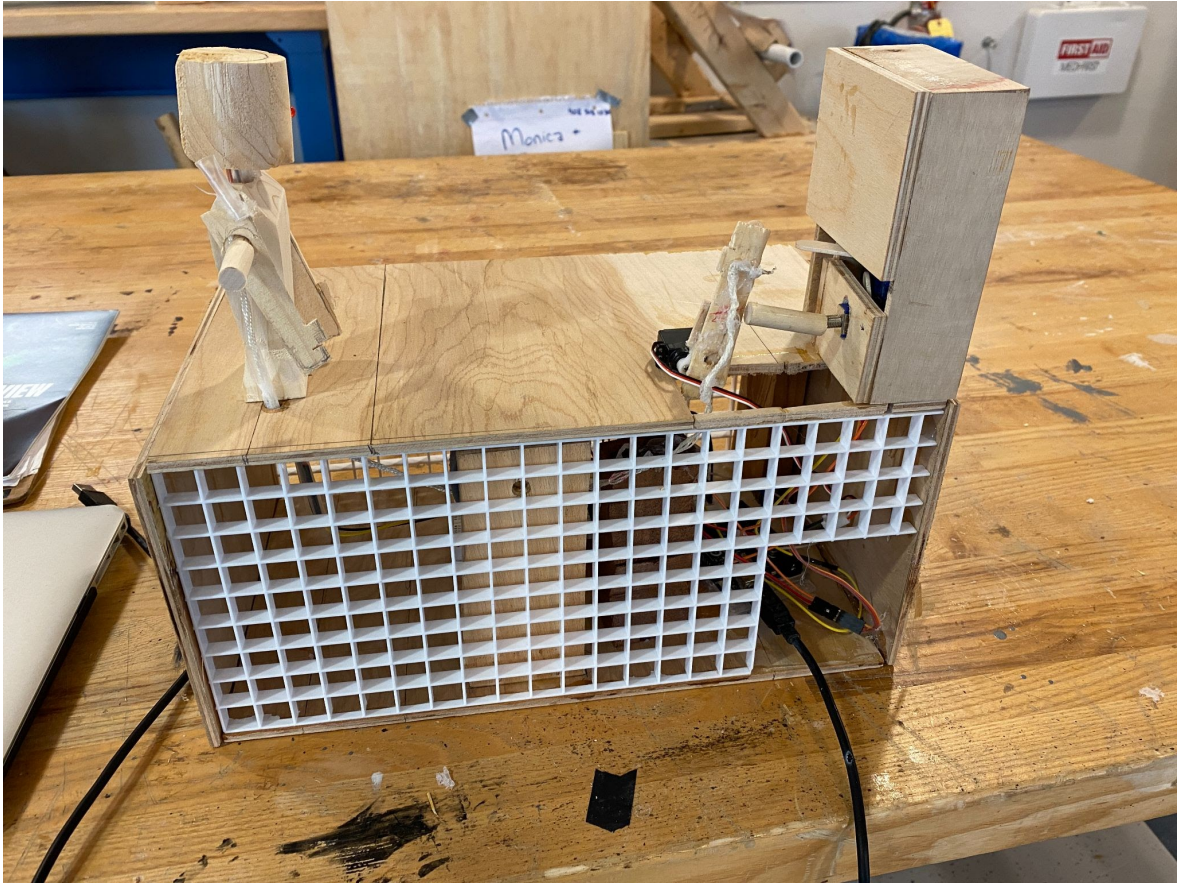


**A PROJECT REPORT ON
TASK MACHINE DESIGN
COMPETITION**



SUBMITTED BY

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Introduction

For this project, we have been asked to design a box that unaccomplished what one does to it. The box that is designed here is made to turn off a switch when it's turned on by a user, relying on an Arduino UNO and a few servos. In the process of undoing what was done, the wood golem on the opposite side of the switch is to move in a way that makes it seems as if they were the one controlling the hand that turns off the switch while having an LED that blinks at different times and speeds to mimic emotions giving it personality. There also is a piece of popsicle that moves above the switch to signal the user not to touch it.

Methodology

When it comes to the design and manufacturing process.

Design

This project went through a few changes, the main idea being to have a humanoid figure which arms will seem to control whatever was to turn off the switch. What was added later on was the waving popsicle stick above the switch.

Manufacturing

This project required some woodworking in it, so on top of the circuitry, woodworking machines were a must.

For woodworking, were used:

- CNC Mill: To carve the torso used as the humanoid figure design on CAD;
- Sander: To smooth pieces after having them cut;
- Saw: For cutting the top and bottom of parts of the box
- Band Saw: For cutting the plastic parts for the sides, and the switch boxes
- Scroll Saw: For the pieces that needed more precise cuts, such as the arms.
- Sandpaper, hand files, wood glue, and superglue were used

The woodworking component of this project was mostly used for the box's shell

For the circuitry, were used:

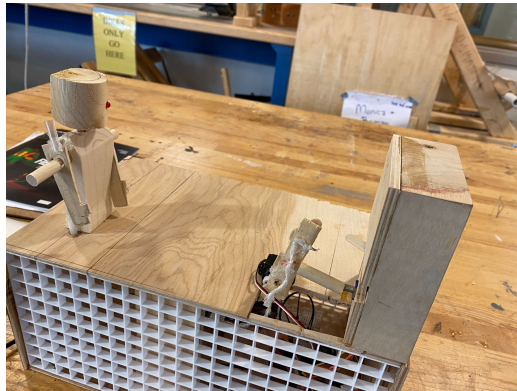
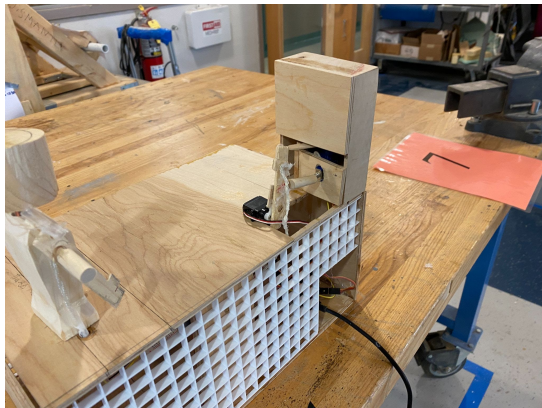
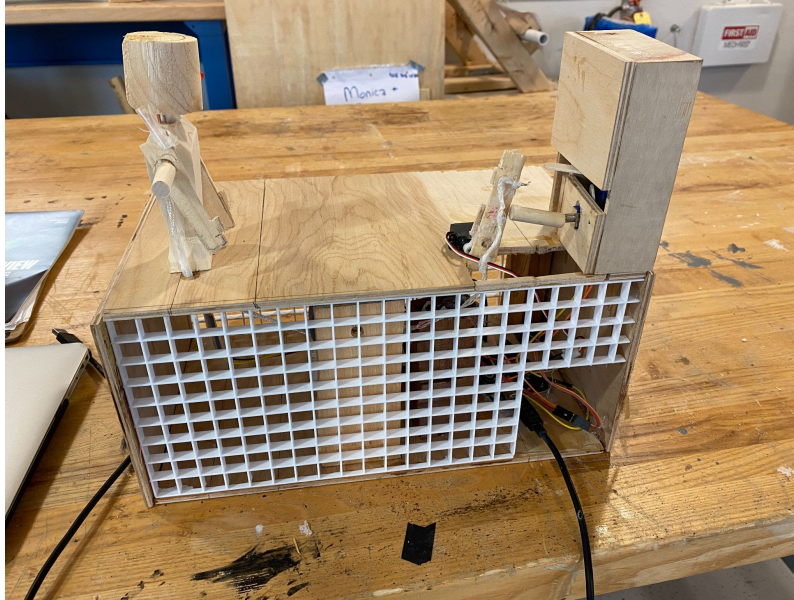
- Arduino UNO: It was used to receive all the controls and commands for the moving of the box.
- A breadboard: On the cables related to every moving part were connect to the Arduino thanks to it.
- Servos: They were used to move the arm components of the design.
- LED and resistor: The LED was used to give some personality to the wood golem and add some complexity to the design, and the resistor kept it from burning.

- Male and female cables: They connected all the electrical and electronics together.

There are some images in the appendix that will show images related to the manufacturing process of different components of this design.

Results

Here is the final result:



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