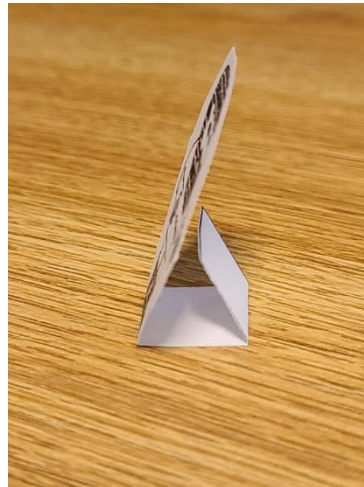


# Holiday Havoc Instruction Manual

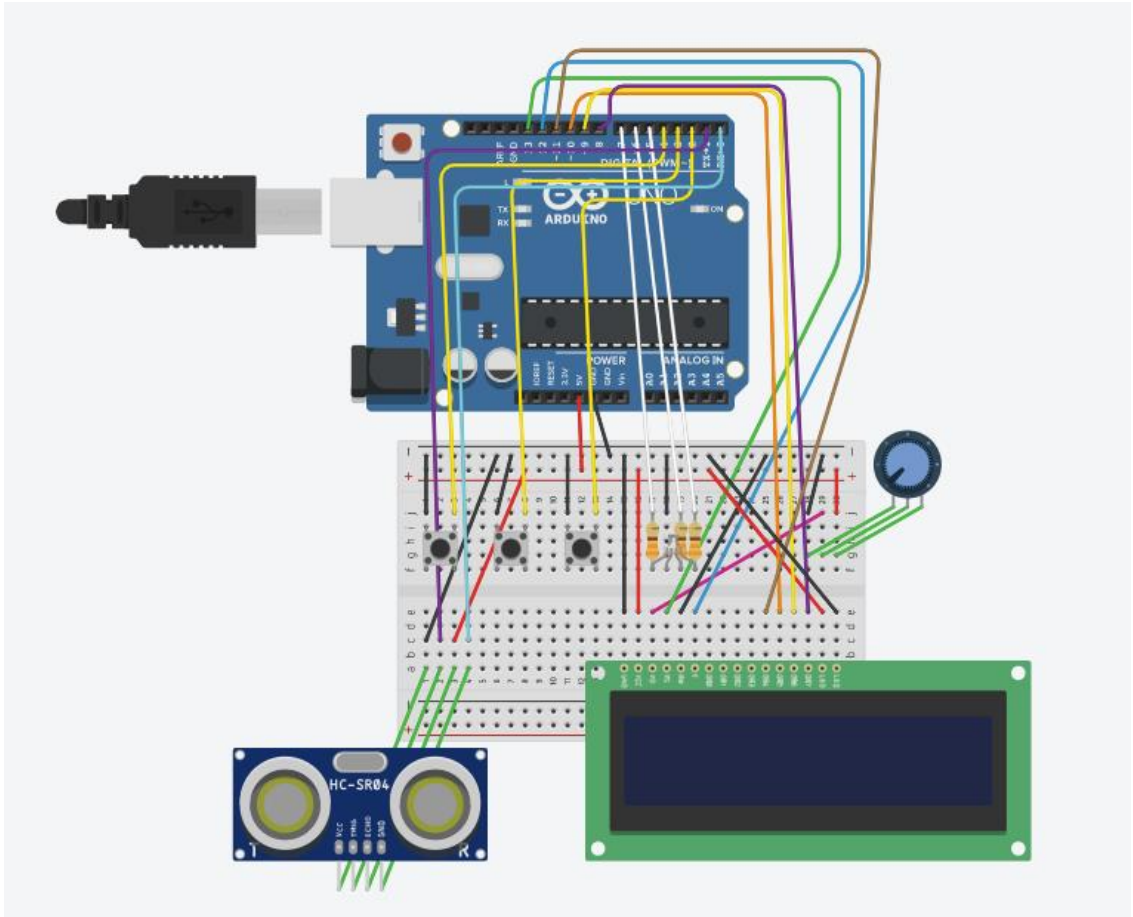
## Setup Instructions:

1. The gameboard and character pieces can be downloaded at this [link](#). The board is designed to fit on regular printer paper.
  - After cutting out the Nice Elf and Naughty Elf pieces from the board, fold up the bottom flaps so your character can stand.



2. Use the [Excel spreadsheet](#) to keep track of minigame wins and other interactive components!

3. This is the wire diagram for the Arduino:



**LCD:**

A15 - A30

**Potentiometer:**

G28, G29, G30

**RGB LED:**

F17, F18 (longest leg), F19, F20

**330 Ohm resistors:**

G17 to I17

G19 to I19

G20 to I20

**Button 1:**

I1, I3 (rest the other pins in the crevice)

**Button 2:**

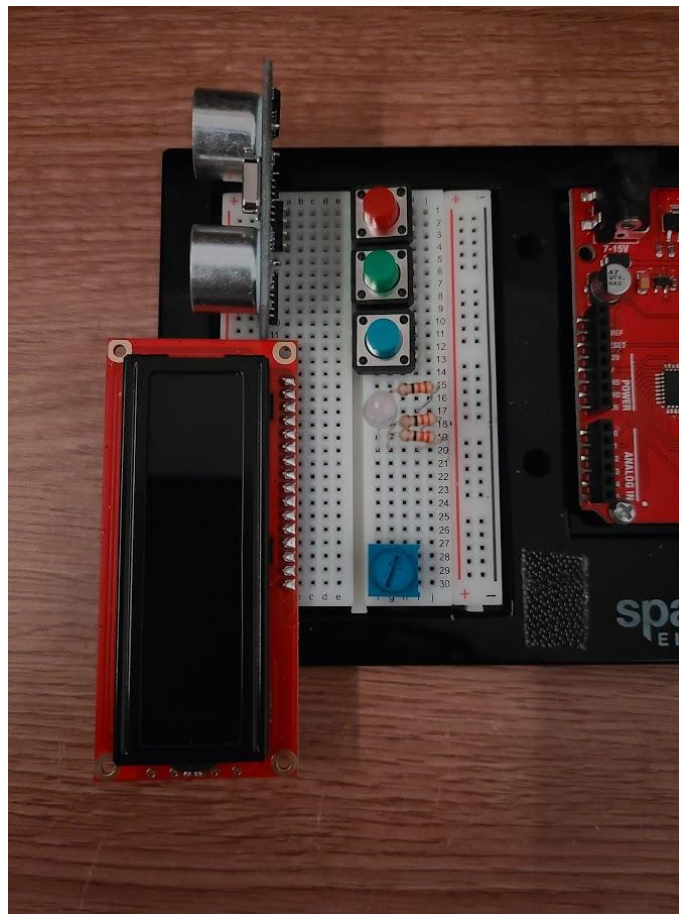
I6, I8 (rest the other pins in the crevice)

**Button 3:**

I11, I13 (rest the other pins in the crevice)

**Ultrasonic Sensor:**

A1 - A4



### Wires:

J30 to (+), J29 to E17, J28 to (-)

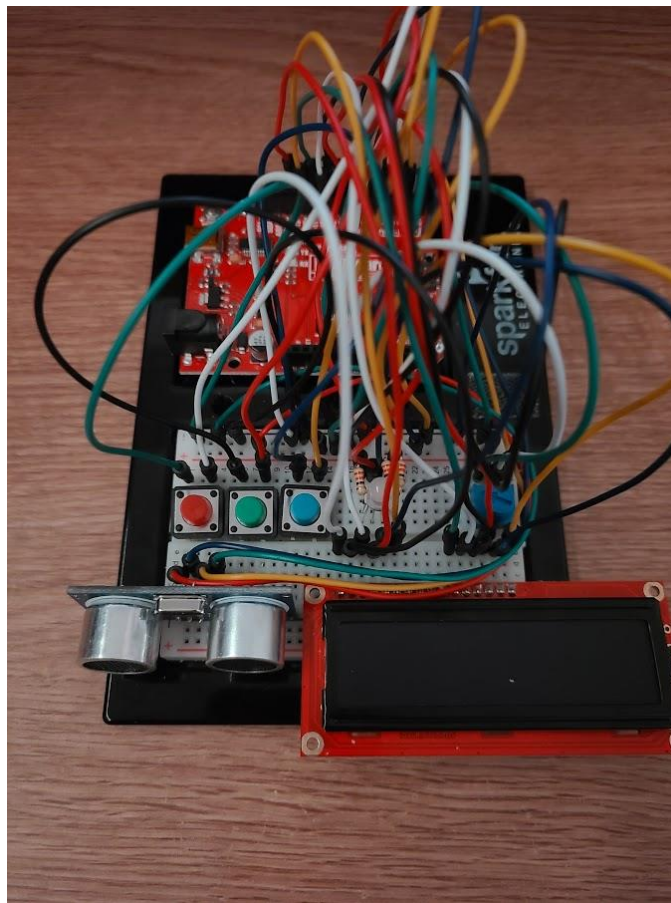
J20 to Arduino D5, J19 to Arduino D6, J18 to (-), J17 to Arduino D7

GND to (-), 5V to (+)

J13 to Arduino D2, J11 to (-), J8 to Arduino D3, J6 to (-), J3 to Arduino D4, J1 to (-)

E30 to (-), E29 to (+), E28 to Arduino D8, E27 to Arduino D9, E26 to Arduino D10, E25 to Arduino D11, E20 to Arduino D12, E19 to (-), E18 to Arduino D13, E16 to (+), E15 to (-)

C4 to (-), C3 to Arduino D0, C2 to Arduino D1, C1 to (+)



4. Copy [the code](#) into your Arduino IDE and upload to your Redboard.
  - Note: In order to upload the game, the wires connected to D0 (aka RX) and D1 (aka TX) must be unplugged. Plug them back in after the upload is complete.

## Game Rules:

**Objective:** *The goal of the Nice Elves is to create 15 presents and save the Holiday, while the Naughty Elves – hidden among the Nice Elves – will try to sabotage 15 presents. When either team creates/sabotages 15 presents, they are the winners.*

### Basic Overview:

1. Use the Excel spreadsheet to assign a role to each player. [Excel instructions](#)
  - Each player has their own personal sheet that only they can view, while everyone can view the Main sheet.
2. Once the roles have been assigned, the Naughty Elves will then find out their teammates through Zoom. [Explanation](#)
3. The players will then input a seed that everyone has agreed upon. [Explanation](#)
4. To begin each turn, the players will roll the dice to determine how many spaces that team moves. [Turn Breakdown](#)
  - Remember to vote on Zoom polls for forks in the road!
  - Remember to collect 4 points when passing start!
5. On every space, minigames will be played. Minigames are determined by the pattern of the space.
  - Zigzag: [Minigame 1](#) – Choose a Card
  - Dots: [Minigame 2](#) – Dice Roll
  - Squares: [Minigame 3](#) – Reaction Speed
6. Before the minigames, vote for the Lead Elf and Assistant Elf (the two players that will participate in the minigame). [Explanation](#)
7. Play the minigame!
8. If the Nice Elves win the minigame, a present is created, and the Nice Elves gain a point. If the Naughty Elves win the minigame, a present is sabotaged, and the Naughty Elves gain a point.
9. Certain tiles on the board are marked by stars. On these tiles, the active team draws a Santa's Blessing card, which gives the opportunity for a power-up – at a cost. [Explanation](#)

**Excel:**

**Main Sheet**

	A	B	C	D	E	F	G	H	I
1									
2	<b>How Many Players?</b>								
3	Does Everyone Know Their Role? (Mark with X)								
4									
5	<b>Minigame 1 Lead Elf (Player #):</b>								
6	<b>Minigame 1 Assistant Elf (Player #):</b>								
7	<b>The Point goes to:</b>								
8									
9	<b>Minigame 2 Lead Elf (Player #):</b>								
10	<b>Minigame 2 Assistant Elf (Player #):</b>								
11	<b>The Point goes to:</b>								
12									
13	<b>Minigame 3 Lead Elf (Player #):</b>								
14	<b>Minigame 3 Assistant Elf (Player #):</b>								
15	<b>The Point goes to:</b>								
16									
17	<b>Naughty Elf Decision:</b>								
18									

**Individual Player Sheet**

	A	B	C	D	E	F	G
1							
2	<b>Assigned Role:</b>						
3	<b>Your Role (Rewrite to Save):</b>						
4							
5	<b>Minigame 1 Input:</b>				<b>Received From Lead Elf:</b>		
6							
7	<b>Minigame 2 Input:</b>		<b>Total:</b>				
8							
9	<b>Minigame 3 Input:</b>		<b>Total:</b>				
10							
11	<b>Naughty Elf Input:</b>						
12							
13							
14							

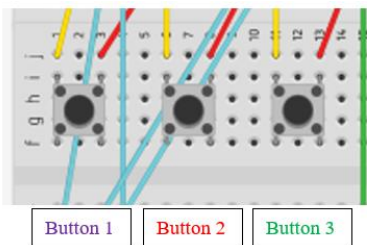
- Each player can choose whichever number they want at the beginning of the game.
- The Naughty Elf input is for the decision made by the Naughty Elves. Only the Naughty Elves should use this cell, and only one of the Naughty Elves need to input the decision.

### Assigning Roles:

1. Write the number of players on the Main Sheet. This will randomly assign a role to that many players.  
  
\*Two-thirds of the players are Nice Elves, one of these Nice Elves will be Santa, and the remaining third of the players are Naughty Elves.
2. Each player should then go to their own sheet, which will show their role.
3. Once everyone knows their role, one of the players can go to the Main Sheet and place an "X", which makes the roles disappear from each sheet.
  - If it helps to remember, there is a space in each Player's sheet to manually write in the role **after** it has disappeared.
4. On the Zoom call, have everyone close their eyes. Then only the Naughty Elves open their eyes to see their teammates. They close their eyes again, and then everyone opens their eyes.

### The Beginning of the Game

1. The game begins at the title screen, with an arrow at the bottom right corner. Every time there is an arrow in the bottom right corner, the user can press Button 1 to continue to the next screen.



2. The game prompts each player to find their role on the Excel spreadsheet.
3. The game then asks for the seed that will be used for the game. Everyone should agree on a seed and input it into their Arduino.
  - Button 1 increases the highlighted digit, Button 2 decreases the highlighted digit, and Button 3 moves to the next digit.

4. The game begins with the Nice Elves' turn, and then alternates between the Nice Elves and Naughty Elves.

### **How each Turn Works:**

1. Each turn starts with a dice roll.
  - If the road forks off, make a Zoom poll for which direction to take.
  - If the team passes the Start tile, they gain 4 points.
2. The Arduino asks if that team passed the start tile.
3. The Arduino asks which minigame that team landed on. Button 1 corresponds with minigame 1, Button 2 corresponds with minigame 2, and Button 3 corresponds with minigame 3.

Minigame 1: Tile with Squares

Minigame 2: Tile with Zigzags

Minigame 3: Tile with Dots

4. The players must then vote for the Lead Elf and Assistant Elf that will participate in the minigame.
5. The Lead Elf and Assistant Elf play the minigame.
6. The Arduino asks if the team got a Santa's Blessing – either from landing on a tile with a star or going past a tile with "!". If yes, then that team must decide if they want the blessing or skip it.
7. End of turn, and the next turn begins.



## **Voting:**

1. For every minigame, the players must vote on a Lead Elf and Assistant Elf (the players that do the minigame).
2. Player 1 starts as the Lead Elf, and then it changes every turn to the next player in line (first player 1, then player 2, etc.).
3. The Lead Elf then chooses another player to be their Assistant Elf.
  - The person chosen as the Assistant Elf in the previous minigame cannot be chosen twice in a row.
4. Every player then votes on a Zoom poll whether or not they want those players as the Lead Elf and Assistant Elf for this minigame.

**Majority Approves:** the elected players will play the minigame.

**Majority Disapproves:** the Lead Elf position is passed to the next player in line, and the voting process starts over.

- If the vote fails three times before being approved, the Nice Elves lose a point.
5. After voting, write the Lead and Assistant Elves' player numbers (1, 4, 7, etc.) in the appropriate cells on the Main Sheet in Excel.

## **Minigames:**

### ***Minigame 1:***

1. The Lead Elf is presented with 3 letters on the LCD screen. An "O" stands for the creation of a present, and "X" stands for the sabotage of a present.
2. The Lead Elf chooses one of the letters to discard by pressing the corresponding button (Button 1 for the left, Button 2 for the middle, Button 3 for the right).

3. The Lead Elf then inputs the **two** remaining letters into Excel, next to “Minigame 1 Input”, where they will be sent directly to the Assistant Elf.
4. The Assistant Elf will then choose **one** the letters that the Lead Elf sent them in Excel (shown in the cell to the right) and write it next to “Minigame 1 Input”.
5. **If an “O” is chosen:** a present is created, and the Nice Elves gain a point.  
**If an “X” is chosen:** a present is sabotaged, and the Naughty Elves gain a point.
6. The team that gets the point will be displayed on the Main Sheet.

### ***Minigame 2:***

1. Both the Lead Elf and Assistant Elf are given a choice of two random numbers each.
2. They must select either the first number (Button 1) or second number (Button 2) to send to Excel, next to “Minigame 2 Input”.
3. The numbers that were chosen by the Lead Elf and Assistant Elf will be added together, but the total will only be shown to the Lead Elf.  
**Total > 8:** a present is created, and the Nice Elves gain a point.  
**Total ≤ 8:** a present is sabotaged, and the Naughty Elves gain a point.
4. The team that gets the point will be displayed on the Main Sheet.

### ***Minigame 3:***

1. Both the Lead Elf and Assistant Elf are told to press a button (any button) when the RGB LED changes color.

2. The RGB LED then begins blinking, and it continues for a random period of time, until the color changes.
3. After the player presses a button, the Arduino gives the reaction time, which the Lead Elf and Assistant Elf will input in Excel, next to "Minigame 3 Input".
4. These two reaction times are then added together, but the total will only be shown to the Lead Elf.

**Reaction Time < 560:** a present is created, and the Nice Elves gain a point.

**Reaction Time ≥ 560:** a present is sabotaged, and the Naughty Elves gain a point.

5. The team that gets the point will be displayed on the Main Sheet.

### **Santa's Blessings:**

1. If a team lands on a Santa's Blessing tile, or they go past a Santa's Blessing checkpoint, then they draw a Santa's Blessing.
2. The Arduino will first say what the blessing is, then the next screen shows the cost of the blessing and its duration (if applicable).
3. **If the Nice Elves landed on the tile**, then every player will vote (through Zoom) if the team should get the blessing. **If the Naughty Elves landed on the tile**, then those players will private message each other and decide if they want it, which will be anonymously displayed on Excel for everyone to see.
4. If the team got the blessing, then it is now in effect and the cost has been charged. If the team chose not to get it, then no change is made.

**List of Santa's Blessings:**

1. Move Double Spaces  
Cost: 2 Points  
Length: 2 Turns
  
2. Gain Double Points  
Cost: 3 Points  
Length: 2 Turns
  
3. Steal a Point from the Other Team  
Cost: Skip Next Blessing  
Length: N/A
  
4. Minigame Redo  
Cost: Skip Next Blessing  
Length: Until Used
  
5. Extra Dice Roll  
Cost: Skip Next Blessing  
Length: Until Used
  
6. Swap Places with Other Team  
Cost: 1 Point  
Length: N/A

### **Naughty Elves Only:**

7. Pick a Blessing

Cost: Skip next Blessing

Length: N/A

8. Knapsack

Cost: None

Length: Until Used

9. Cookies and Milk

Cost: None

Length: Until Used

### **Kidnapping:**

- Once the Naughty Elves have both a Knapsack **and** Cookies and Milk, then they can kidnap a player.
- They will decide with private messages and use Excel to anonymously show their decision.
- The kidnapped player is now out of the game and must mute themselves, turn off their camera, and cannot speak in chat.
- If the kidnapped player was Santa, then the game is over, and the Naughty Elves win.

**Most importantly, remember to have fun! If you have any criticism, please feel free to contact the Holiday Havoc Team.**