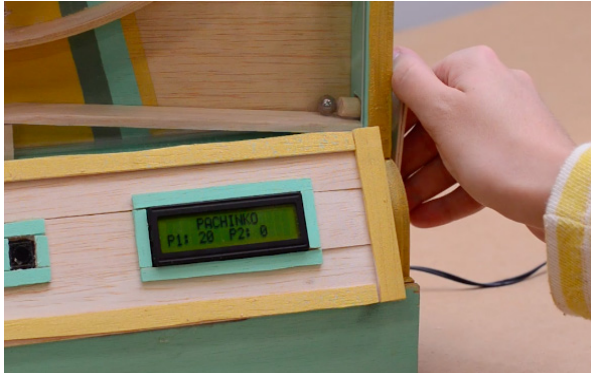# Pachinko Machine
Part Two: Construction and Circuitry

## Supplies:

|		
☐ balsa wood	☐ hack saw	☐ 5mm blinking LED
☐ wood scraps	☐ sandpaper	☐ switch or button
☐ plastic canvas	☐ low temp hot glue gun	☐ 10 K potentiometer
☐ plexiglass	☐ drill	☐ two 220 ohm resistors
☐ eight small magnets	☐ 1/4" and 5/8" drill bits	☐ 5 V power supply
☐ 1.25" L x 1/4" diameter bolt	☐ wire strippers	☐ half-sized breadboard
☐ 1/4" diameter nut	☐ soldering iron and solder	☐ electric tape
☐ two 1/4" diameter washers	☐ Arduino Uno	☐ duct tape
☐ craft knife	☐ 16 x 2 LCD display	☐ hookup wire
☐ pencil	☐ five IR breakbeam sensors	☐ Arduino sketch
☐ ruler	☐ 3 V piezo	☐ circuit diagram

Pachinko Machine
Part Two: Construction and Circuitry
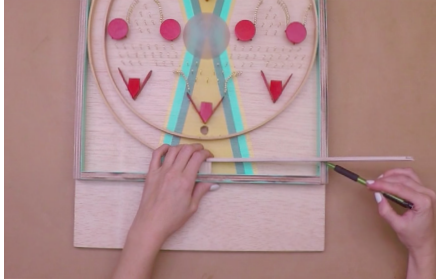
1. Measure and cut a piece of balsa wood to reach from the end of the embroidery hoop to the wall of your pachinko machine.

2. Sand the edges down. You want the ramp to be as smooth as possible!
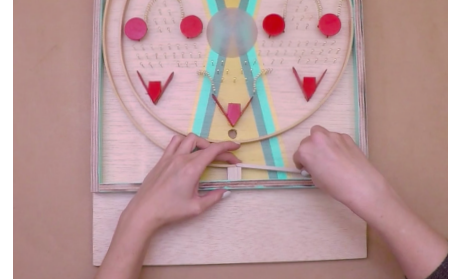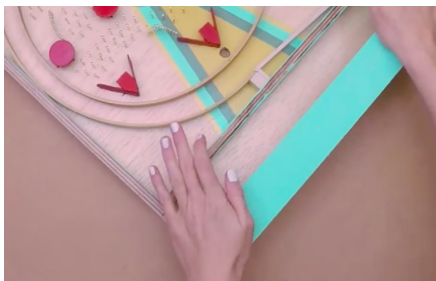
3. Glue the ramp in place.

4. Make a mark where you want to attach your launcher. Ours is about two inches from the bottom edge of the game board.
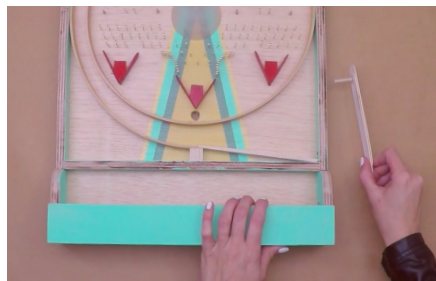
5. Drill a hole where you made the mark using the 1/4" bit.

6. Glue the bottom, left, and right sides of your tray to the board.

7. Glue the front of your tray on. Make sure your hand can fit in! This is where you will be storing your pachinko balls.

8. Now grab the launcher that you made in part one of this project. Place the dowel into the top launcher hole and mark where the bottom hole lines up.
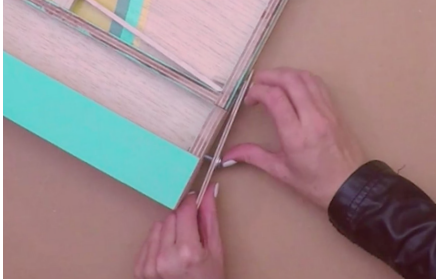
9. Drill a 1/4" hole into the launcher where you made the mark in step 8.
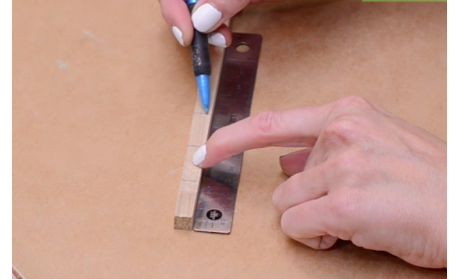
Pachinko Machine

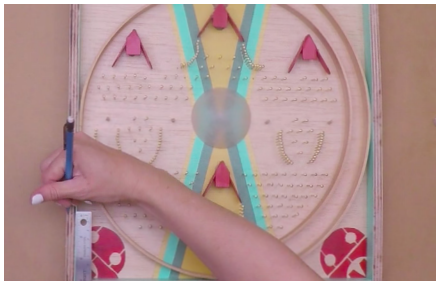## Part Two: Construction and Circuitry

10. Use the nut and washers to secure the launcher to your game board. It doesn't have to be super tight!
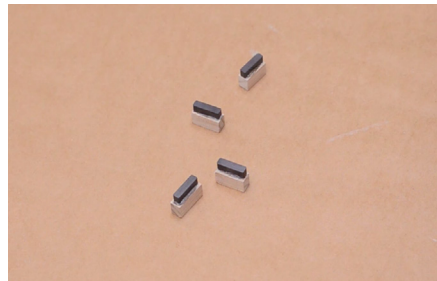

11. Use the hack saw to cut off any part of the launcher that hangs below the bottom of the game and sand it down.

12. Measure and cut four pieces of wood that are the same size as your magnets.

13. Mark three inches from the top and bottom of your playing field on the left and right side of your game.

14. Glue magnets to four of the pieces of wood.

15. Glue the four pieces of wood to the four spots that you marked in step 13.

16. Carefully drill a hole near the bottom right of your plexiglass. This is where you will insert the Pachinko balls to launch them.

17. Place the other four magnets on top of the four that are glued to the game board. Now add hot glue to the back of the four magnets that you just placed.

18. Quickly lay the plexiglass on top of the hot glue that you just dispensed. This will attach the four magnets to the plexiglass.

Pachinko Machine
Part Two: Construction and Circuitry

19. Glue a small, wooden divider to your tray so that you have a space to store your pachinko balls and a space that is large enough for your electronic components.
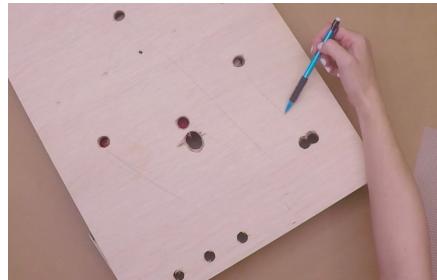

20. Use the 5/8" drill bit at an angle to "tune" the five ball holes on the back of the board. Make them slant downwards so that the pachinko balls can easily roll out.

21. Drill some holes through the back of the electronic components side of your tray. This is where the wires will go.

22. Now drill a hole through the back of the pachinko ball section of your tray.

23. Draw paths from the five ball holes to the pachinko ball hole that you made in step 22.

24. Glue a small piece of wood at an angle so that the pachinko balls will roll towards the pachinko ball hole.

25. Make channels with the plastic canvas from each and every ball hole to the ramp. Glue them down. Make sure to make the arcs large enough for the pachinko balls to freely fall!
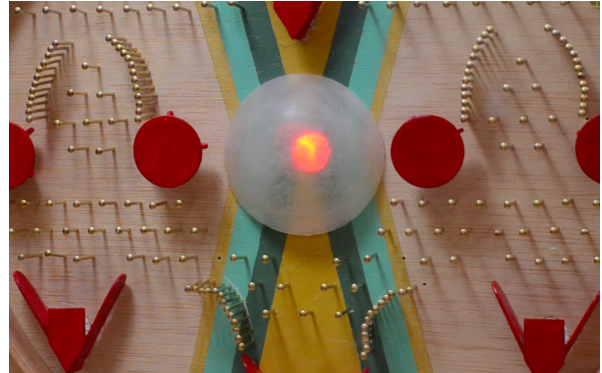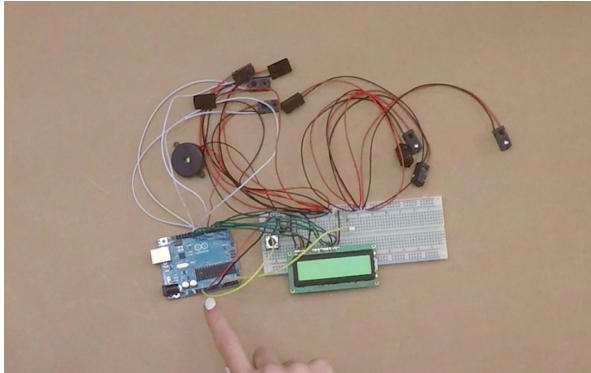

26. Use one more piece plastic canvas to cover the ramp. Now it's time to add electronic components!

Pachinko Machine
Part Two: Construction and Circuitry

This is the part of the project where you can really let your creativity shine! We will provide the circuit diagram and code for our game design, but there are countless possibilties when it comes to enhancing your pachinko machine.

For the circuit, wire up your breadboard and Arduino according to the diagram on the following page. You will most likely have to extend the pins on certain components (like the button and the LED) using solder and hookup wire. For more details on each component and on the diagram, watch the video for this project at: https://youtu.be/3c4hqigJCbo

For the Arduino code, please visit makercamp.com where you can copy it and then paste it into the Arduino IDE:

http://makercamp.com/wp-content/uploads/2015/11/PachinkoMachineArduinoSketch.txt

Happy making!

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