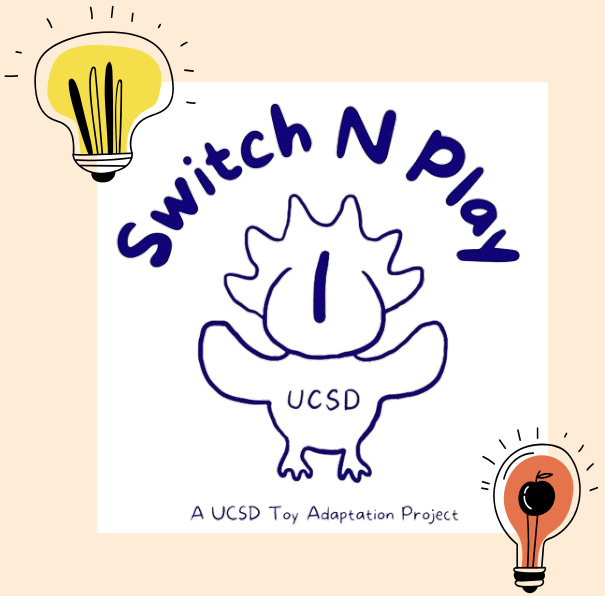
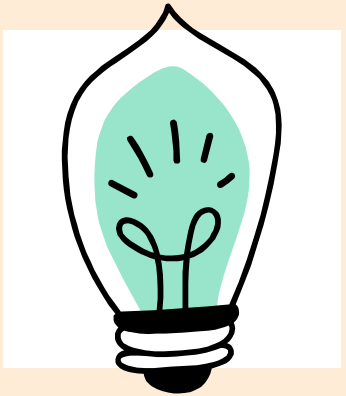
Latching RF Switch for Accessible Play



Chloe Chen, Sabrina Sanchez



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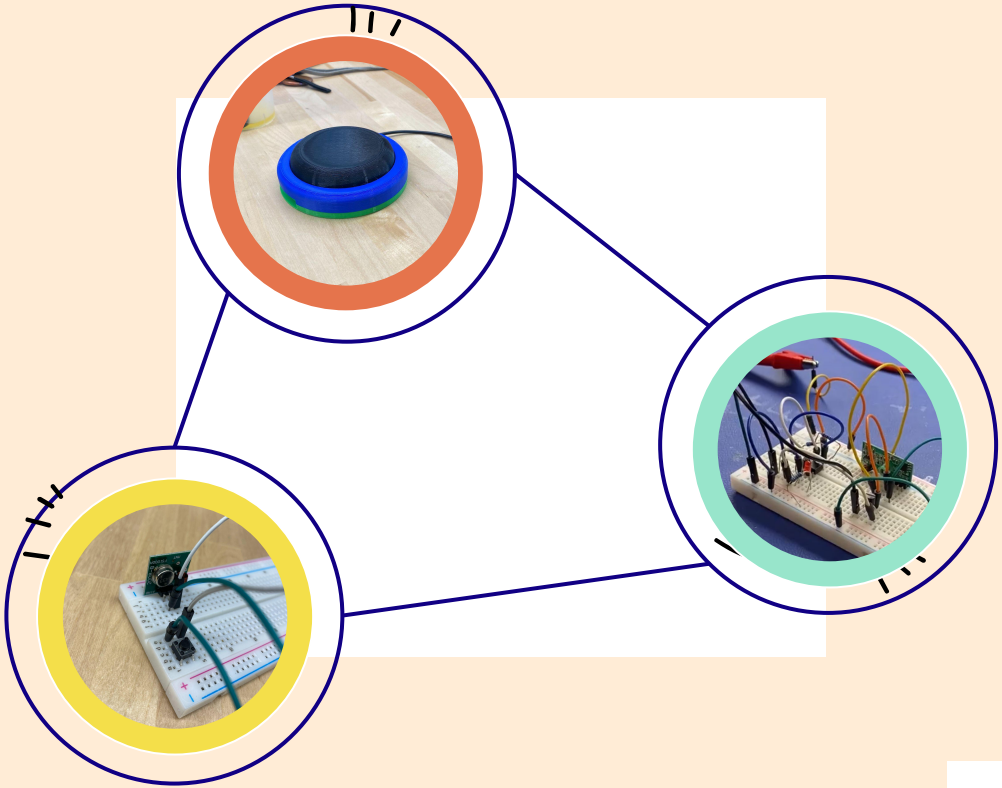
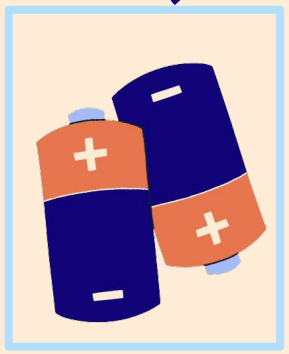
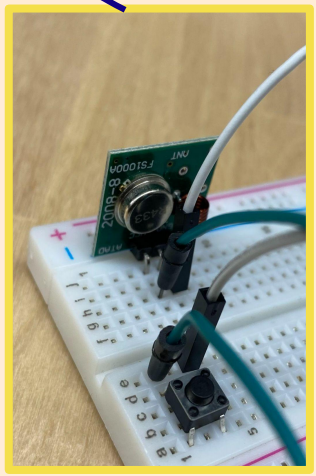


RF Transmitter & Receiver



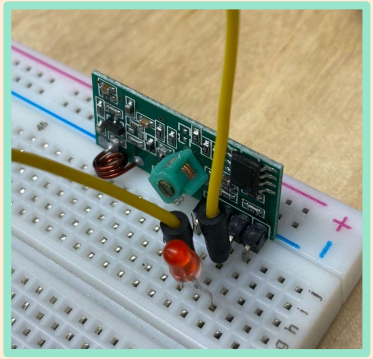
Battery (6V)



Push Button + Transmitter

433 MHz

Receiver + LED (Toy)



Battery (6V)

Bistable 555 Timer

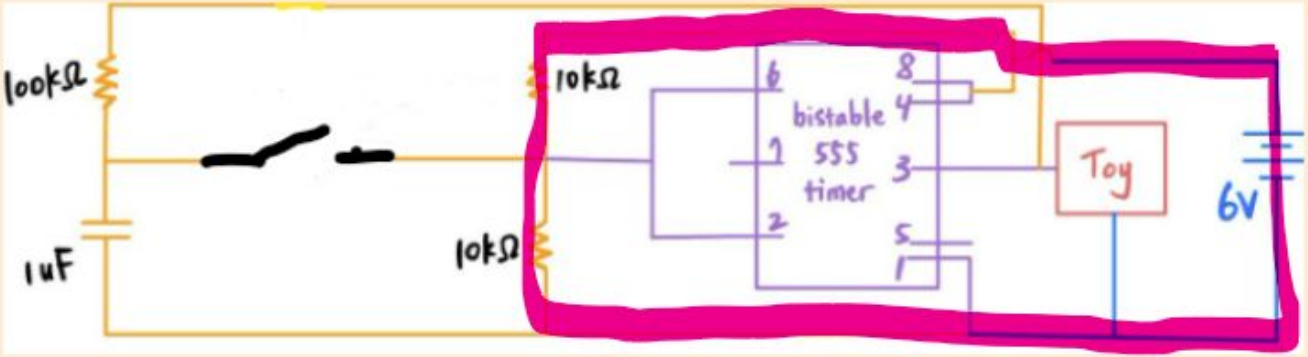
The bistable 555 timer alternates between two stable states.

In the circuit that we designed, the click of the button changes the state. So, one click will turn the LED on, and another click will turn the LED off.

The output is triggered ON when pin 2 (trigger) senses a voltage less than ⅓ of the supply voltage. The output is triggered OFF when pin 6 (threshold) senses a voltage more than ⅔ the supply voltage.

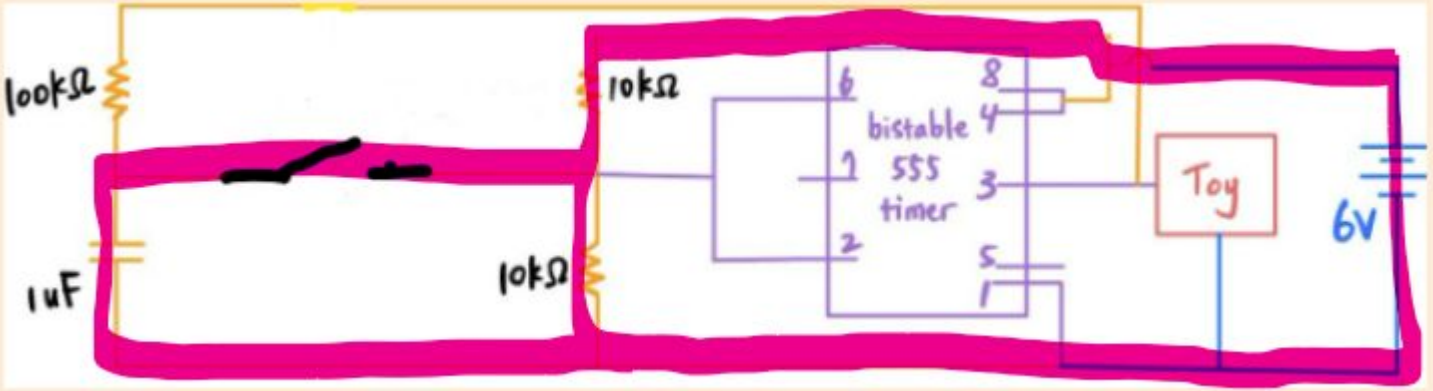
Bistable 555 Timer

When circuit is powered on:



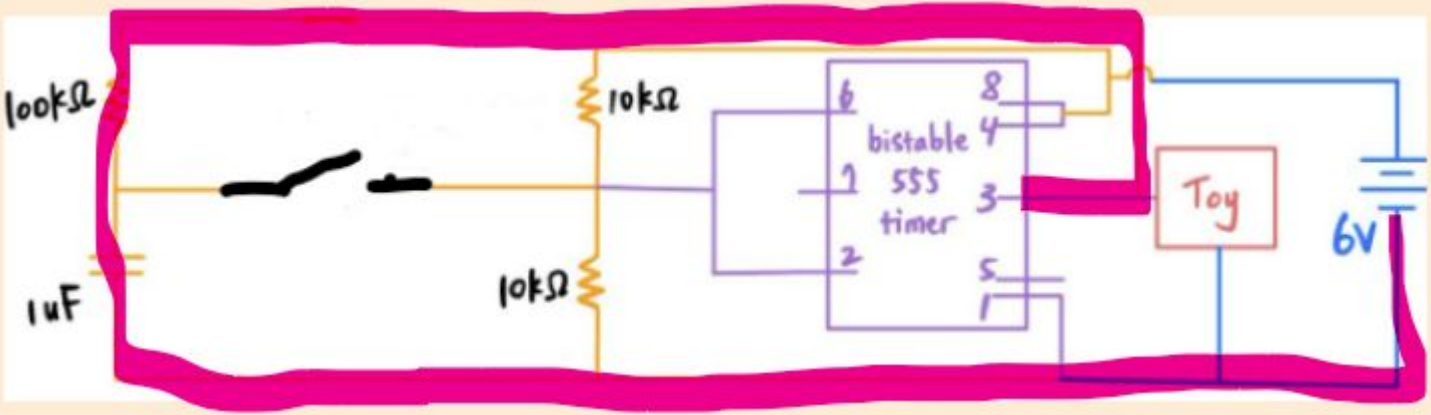
Bistable 555 Timer

When button is pressed:

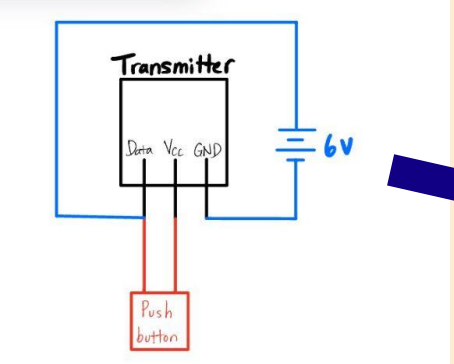


Bistable 555 Timer

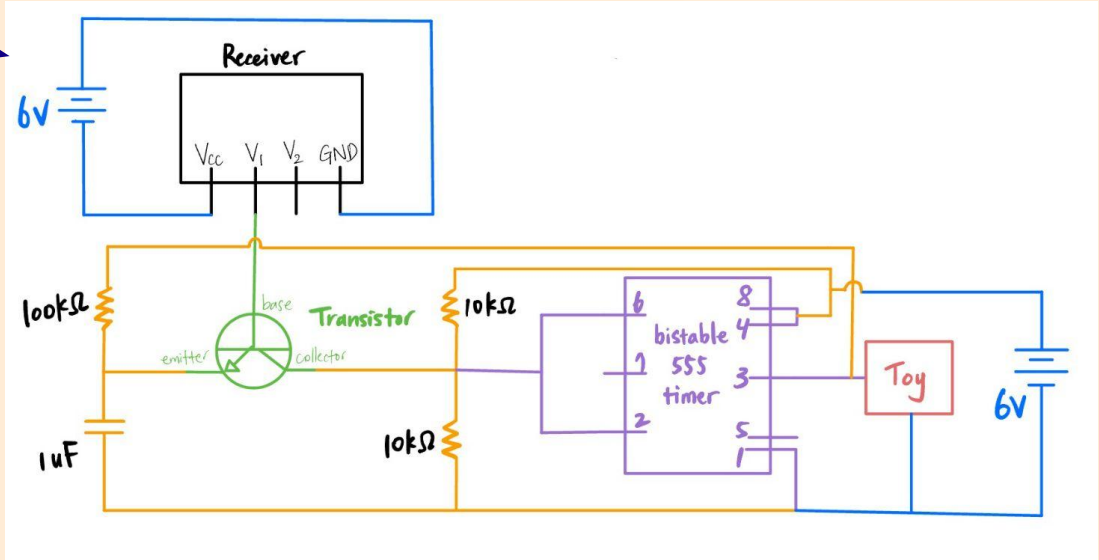
While ON and when clicking to OFF:



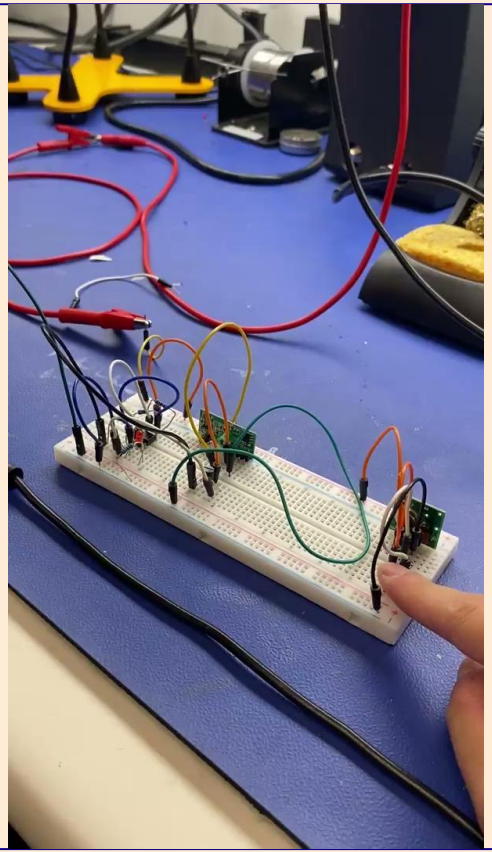
Circuit Diagram



433 MHz



Circuit in Action



Reference

1. Elonics - Electronics Projects on Breadboard. (2017, May 5). *Push on off latching circuit using a push button switch | 555 timer projects*. YouTube. https://www.youtube.com/watch?v=_uReSadp-KA
2. https://www.hnhcart.com/blogs/learn/2n2222-transistor-and-its-applications
3. HiLetgo. (n.d.). *433MHz RF Wireless Transmitter and receiver module for Arduino/ARM/MCU/raspberry pi/wireless DIY*. 433MHz RF Wireless Transmitter and Receiver Module for Arduino/Arm/McU/Raspberry pi/Wireless DIY,Shenzhen HiLetgo Technology Co., Ltd. https://hiletgo.com/ProductDetail/2157330.html