

TRIBALSTUDIOZ

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Learning Objectives

In this topic you will learn...

T-Scratch Light Sabre Coding (3/3)

- Code the “Clash-of-the-Sabres” & “Sabre Swing
- Using T-Sense (Vibration) to test for “clashing”
- Using T-Sense (Tilt) to test for “Swinging”
- Change of sound files

Add-on Codes (Part 1/2)



Add on to the project with a “Clash” Mode while the sabre is turned on.

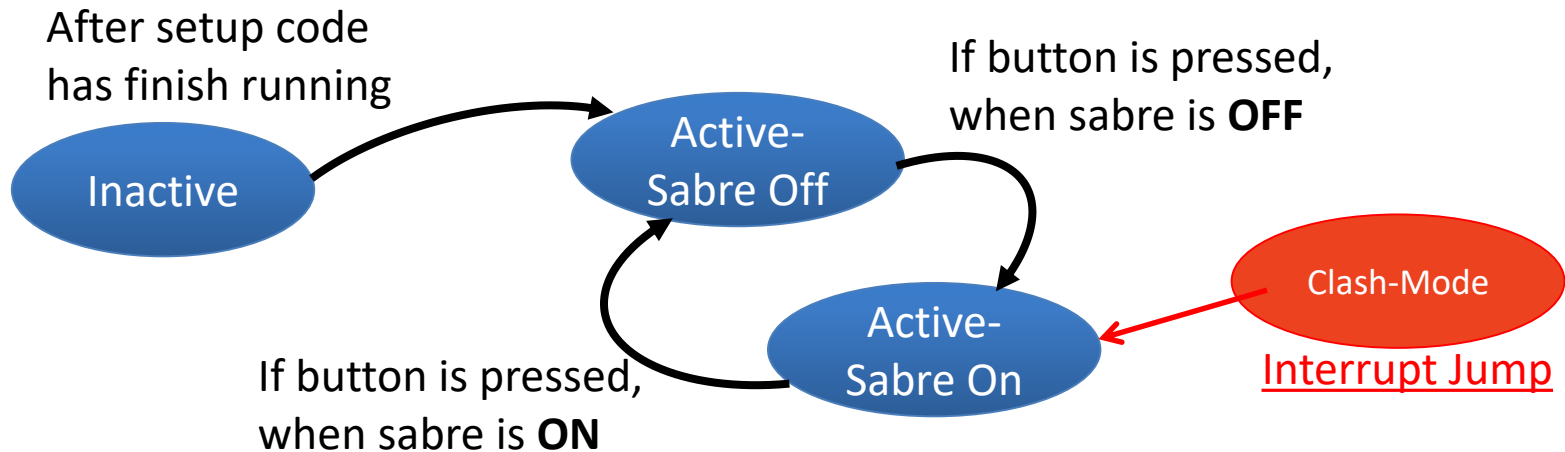
- Simulate clashing of the sabre
- Immediate response (LED On-Off)
- Code a new state: Active-Clash state [2].
- Still responds quickly to button.

Code “Immediate Response”



Using attachInterrupt()

- Same as in real-life, interrupt stops the program and jump to another function.





Clash State (Part 1/3)

Alter the setup() loop with the following script

```
void setup() {
  Serial.begin (9600);
  mySerial.begin (9600);

  pinMode(tilt, INPUT);
  pinMode(vibration, INPUT);
  pinMode(button, INPUT);
  pinMode(led, OUTPUT);

  mp3_set_serial (mySerial);           //set Serial for DFPlayer-mini mp3 module
  delay(100);                          //delay 1ms to set serial for DFPlayer
  mp3_set_volume (30);
  delay(500);                           //delay for DFPlayer to power up

  attachInterrupt(digitalPinToInterrupt(2),Clash,FALLING);
}
```

** Insert only one line!**

Add attachInterrupt
When activated, it blinks or teleports to the Clash function



Clash State (Part 2/3)

Code the “Clash” function to change state to 2 only when sabre is on

```
void Clash() {
  if(state == 1){
    state= 2;
  }
}
```

New Function named:
CLASH

Conditional test
Check sabre is on before
changing to state 2



Clash State (Part 3/3)

Code the “Clash” Mode as “state 2” in the main loop with the following scripts

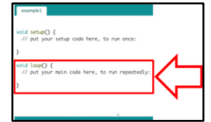
<pre>if (state == 2) { mp3_play(VibrationTrack); }</pre>	<p><u>Conditional test</u> Check IF state is 2 before playing Vibration Sound</p>
<pre> analogWrite(led, 0); delay(50); analogWrite(led, 255); delay(500);</pre>	<p><u>Blinks the Sabre’s Light</u> Code for Sabre to blink</p>
<pre> VibrationTrack++; if (VibrationTrack > 10) { VibrationTrack = 8; } analogWrite(led, glow); timer = millis(); mp3_play(3); state = 1; }</pre>	<p><u>Return to State 1</u> Change to a different “clash” track before returning to state 1</p>

Add-on Codes (Part 2/2)



Add on to the project with a “Swing” Mode while the sabre is turned on.

- Simulate swinging of the sabre
- Immediate Dimming led response
- Code a new state: Active-Swing state [3].
- Still responds quickly to button.



Swing State (Part 1/2)

Code the “Swing” function to move to state 3 when it detects a change of value when its on.

```

if (state == 1) {
  if (millis() - timer > 28000) {
    timer = millis();
    mp3_play(3);
  }

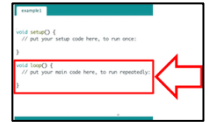
  PreviousTilt = digitalRead(tilt);
  delay(5);
  if (digitalRead(tilt) != PreviousTilt) {
    if (state == 1) {
      state = 3;
    }
  }

  if (glow > 150) {
    glow_count = -1;
  }
  if (glow < 50) {
    glow_count = 1;
  }
  glow = glow + glow_count;
  analogWrite(led, glow);
  delay(5);
}

```

Alter the state 1 code
Add the swing testing condition
in state 1

Tilt tracking function test
only when the tilt value is
changed, we go to state 3



Clash State (Part 2/2)

Code the “Swing” Mode as “state 3” in the main loop with the following scripts

<pre> if (state == 3) { mp3_play(TiltTrack); delay(500); </pre>	<p><u>Conditional test</u> Check IF state is 3</p>
<pre> state = 1; TiltTrack++; if (TiltTrack > 7) { TiltTrack = 4; } mp3_play(3); } </pre>	<p><u>Plays a Sabre swing track</u> Code for the track to be played</p>
	<p><u>Return to State 1</u> Change to a different “Swing” track before returning to state 1</p>

We have come to the end of the program.
Good luck and keep coding.

END OF PART 3/3