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/*
  Name: audio_switch

  Turns on a PowerSwitch Tail II or equivalent to power up the sound system when
  detecting an audio signal on the input jack.
  Override switch allows user to turn on/off the sound system without an audio input
  trigger.
  A level adjustment control adjusts circuit sensitivity to the audio input.
  Arduino on board LED indicate status of control signal to the PowerSwitch Tail II.

 */

int led = 13;//Board LED and PST on digital 13
int overrideSw = 8;//Override switch on digital 8
int override = 0;//Value read from override switch
int soundIn = 0;//Input sound source on analog 0
int soundValue = 0;//Value read from sound source
int oldSoundValue = 0;//Previous read value of sound source
int change = 0;//Difference between new and old sound source values
int m = 5;//Difference threshold for determining if there is a sound input or not.
          //Increase value if input is noisy and triggers during input silence.
int power = 0;//Power status when evaluating override power state
int nOn = 0;//Number of samples below threshold before turning on external power
int nOff = 0;//Number of samples above threshold before turning off external power

void setup()                  {
  pinMode(led, OUTPUT);
  pinMode(overrideSw, INPUT);
  Serial.begin(9600);
}

void loop() {

// These next lines evaluate the override switch

    override =digitalRead(overrideSw);

  if (override == 0 && power == 0)
  {
     digitalWrite(led, HIGH);
     power = 1;
     delay(500);
  }

      override =digitalRead(overrideSw);

  if (override == 0 && power == 1)
  {
    digitalWrite(led, LOW);
    power = 0;
    delay(500);
   }
```

```
// These next lines evalute the sound input

  if (power == 0)
  {
   soundValue  =analogRead(soundIn);
  oldSoundValue = soundValue;

  delay(20);  //this delay determines how often samples of the audio are taken
   soundValue  =analogRead(soundIn);
   change = soundValue - oldSoundValue;

  if (abs(change) > m)
  {
    nOn = nOn + 1;

    if (nOn  ==  25)//decrease to make unit turn on faster
    {
       digitalWrite(led, HIGH);
       nOn = 0;
       nOff = 0;
    }
  }
   else
  {
    nOff = nOff + 1;

    if (nOff  ==  800)//increase to make unit stay on longer during silence
    {
      digitalWrite(led, LOW);
      nOff = 0;
      nOn = 0;
    }
 }

 // uncommment these lines if you want to show on serial monitor
/*
  Serial.print(abs(change));
  Serial.print(" ");
  Serial.print(nOn);
  Serial.print(" ");
  Serial.print(nOff);
  Serial.print("\n");
  */

     }
}
```