

Activity 4: Programming Embedded Systems (Part 3)

Activity 4 : Programming Embedded Systems (Having Fun with Arduino)

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Part 3: Clapping LED

In this part, you will do the coding to create a clapping LED. Clapping [12-123-12-12-1] the clapping state is divided into 5 states. When the button is pushed, play the LED in only one state.

For example: [PUSH BUTTON] x-x [PUSH BUTTON] x-x-x [PUSH BUTTON] x-x [PUSH BUTTON] x-x [PUSH BUTTON] x [PUSH BUTTON] x-x [PUSH BUTTON] x-x-x [PUSH BUTTON] x-x [PUSH BUTTON] x-x [PUSH BUTTON] x

Note:

- For 'x' means LED ON and '-' means LED OFF
- **Given 0.125s delay time between 'x' and '-'**

Example Video Clip : <https://youtu.be/Eld2ZTJbMWQ>

```
int LED_PIN = 2;
int BUTTON_PIN = 3;
int lastButtonState = LOW;
int currentButtonState = LOW;
int ledState = LOW;
int state = 0;
int numLoop;

void setup()
{
  pinMode(LED_PIN, OUTPUT);
  pinMode(BUTTON_PIN, INPUT);
  Serial.begin(11520);
}
```

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```
void loop()
{
  lastButtonState = currentButtonState; // save the last state
  currentButtonState = digitalRead(BUTTON_PIN); // read new state

  if(lastButtonState == HIGH && currentButtonState == LOW) {
    numLoop = getNumLoop(state);
    Serial.println(state);
    Serial.println(numLoop);
    while(numLoop>0){
      ledState = !ledState;
      digitalWrite(LED_PIN, ledState);
      delay(125);
      ledState = !ledState;
      digitalWrite(LED_PIN, ledState);
      delay(500);
      numLoop--;
    }
    state = (state+1)%10;
  }
}

int getNumLoop(int state){
  if(state%10 == 4 || state%10 == 9){return 1;}
  if(state%10 == 1 || state%10 == 6){return 3;}
  return 2;
}
```

Once you finish, **students must inform an instructor or a TA for inspection.**

— THIS IS THE END OF PART 3 —
