

LED Tannenbaum

Übersicht

Es ist mal wieder Weihnachten und man ist unmotiviert zu basteln? Baue einen LED Tannenbaum, das bauen geht schnell - das programmieren dauert ewig. Perfekt (Ihr müsst ja nicht programmieren, habe ich ja für euch erledigt ;D)



Das Programm nutzt folgende Techniken:

- Linked lists
- Pointer

Material

- 12x LEDs in Bunt
- Arduino in irgendeiner Art
- Widerstände ca. 470Ohm
- Kabel
- Karton / Plexiglas

CODE

[schimmelsensor.ino](#)

```
struct node {
```

```
int symbol;          //a symbol, in this case it contains the number
of the led
/* Tree chematic
 *      1
 *    2      3
 *  4    5    6    7
 *
 */
struct node *left; //PTR to the left
struct node *right; //PTR to the right
int pin; //Pin, where is the led connected ?
};

//The tree is programmed here.

struct node node4 = {4, 0, 0, 10};
struct node node5 = {5, 0, 0, 11};
struct node node6 = {6, 0, 0, 12};
struct node node7 = {7, 0, 0, 13};

struct node node2 = {2, &node4, &node5, 9};
struct node node3 = {3, &node6, &node7, 8};

struct node root = {1, &node2, &node3, 7};

//_____

struct node *state = &root; // The code should start at top of the
tree.

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

  //Init all pins
  for(int i = 7;i<=13;i++)  {
    pinMode(i,OUTPUT);
  }

  //RUDOLPHS NOSE PWM PINS
  pinMode(3,OUTPUT);
  pinMode(5,OUTPUT);
  pinMode(6,OUTPUT);
}

long tree_oldmillis = 0;
const int UNIT = (2+1)*1000; //delay without using delay
```

```
long rudolph_oldmillis = 0;
const int RUDOLPH_DELAY = round(UNIT / 3); //delay without using delay
for rudolphins nose
void loop()  {

    //Rudolphins nose
    if (millis() >= rudolph_oldmillis + RUDOLPH_DELAY) { //RUDOLPH_DELAY
Delay without delay
        rudolph_oldmillis = millis();
        //Write random color
        analogWrite(3,random(0,255));
        analogWrite(5,random(0,255));
        analogWrite(6,random(0,255));
    }

    //Christmas tree
    if (millis() >= tree_oldmillis + UNIT) { //UNIT Delay without delay,
        digitalWrite(state->pin,LOW); //Put the last led off
        tree_oldmillis = millis(); //set tree_oldmillis to its new value
        Serial.println(state->symbol); //Print out the symbol, just for
debugging.

        if (random(1, 128) >= 64) { //random(0,1) didnt work, wether its a
issue or not. Im not sure
            if (state->right != 0) { //Has state->right childs?
                state = state->right; //Yep, jump to state->right address
            }
            else {
                state = &root; //It got no childs (damn - thats terrible), jump
back to root to make some
            }
        }
    }
    else {
        if (state->left != 0) { //Has state->left childs?
            state = state->left; //Yep, jump to state->left address
        }
        else {
            state = &root; //Nope, jump back to root
        }
    }
    digitalWrite(state->pin,HIGH); //Put the current state->pin led on
}
}
```

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