

Arduino会梦到光立方吗？

王乐研 戈虹杰



2022/6/1



你好，梦不到。

王乐研 戈虹杰

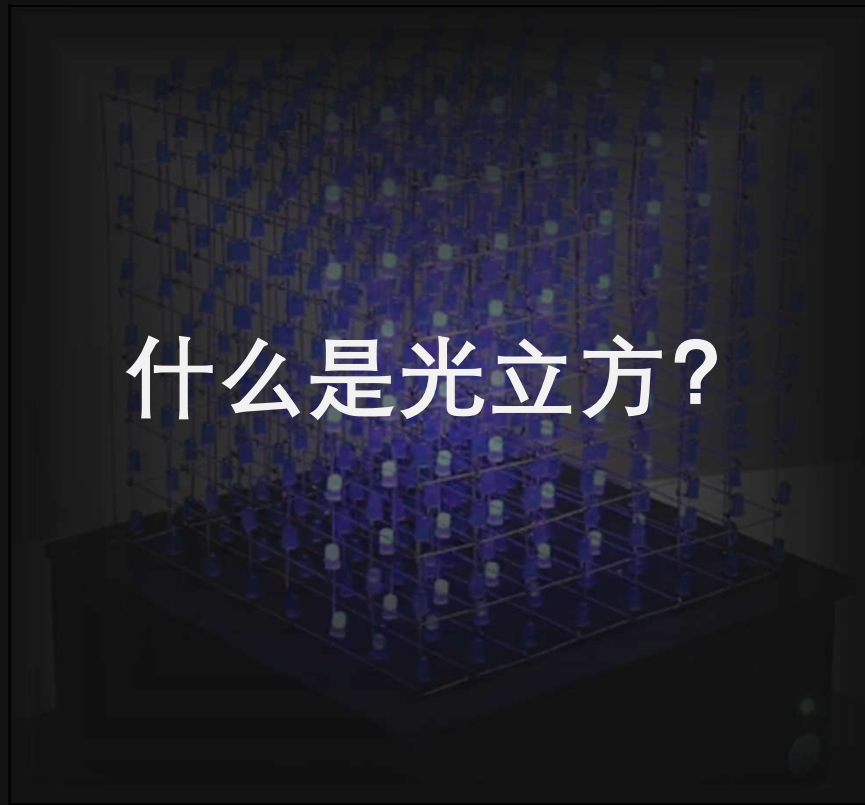


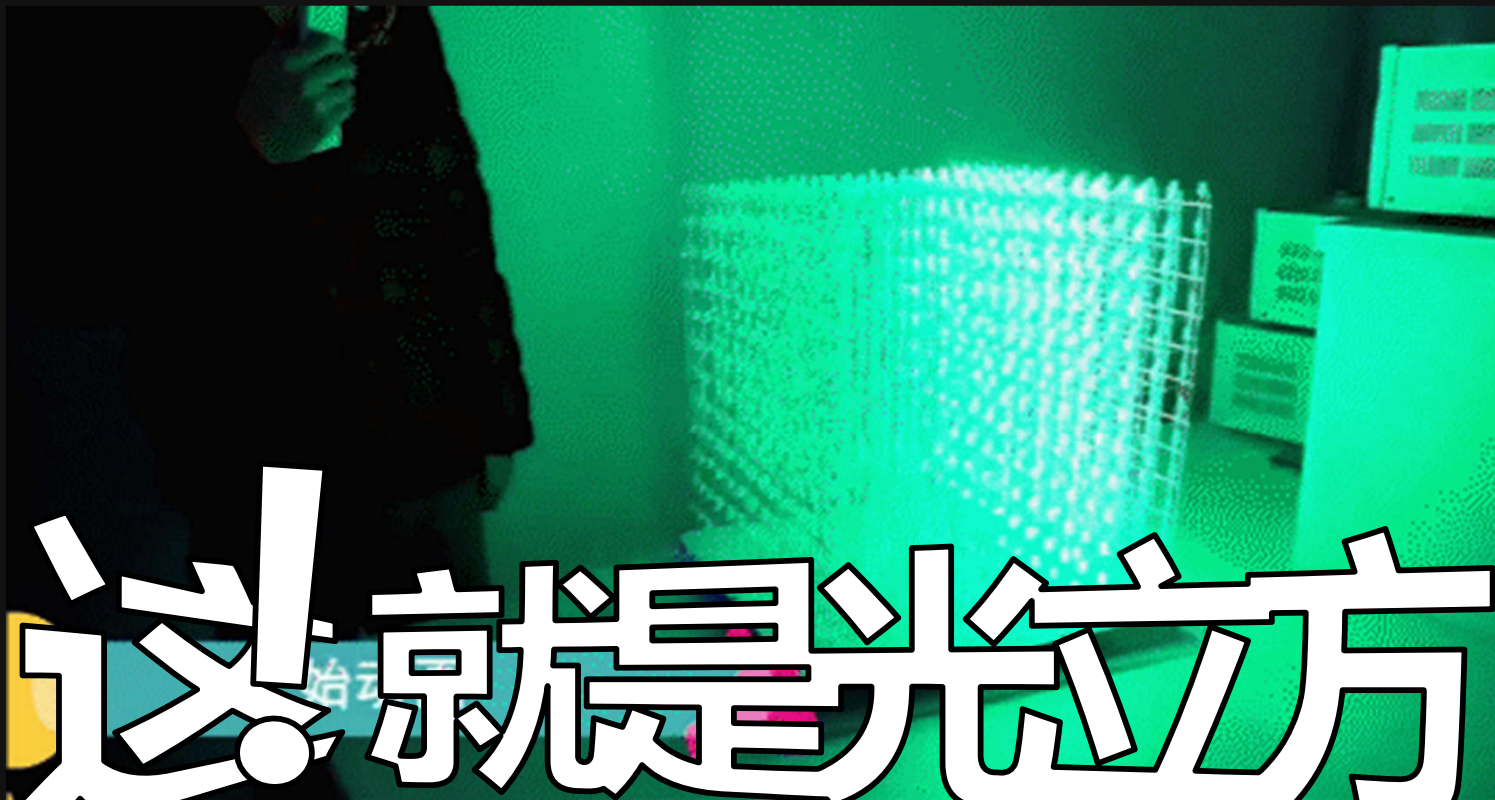
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什么是光立方？





这!就是光立方

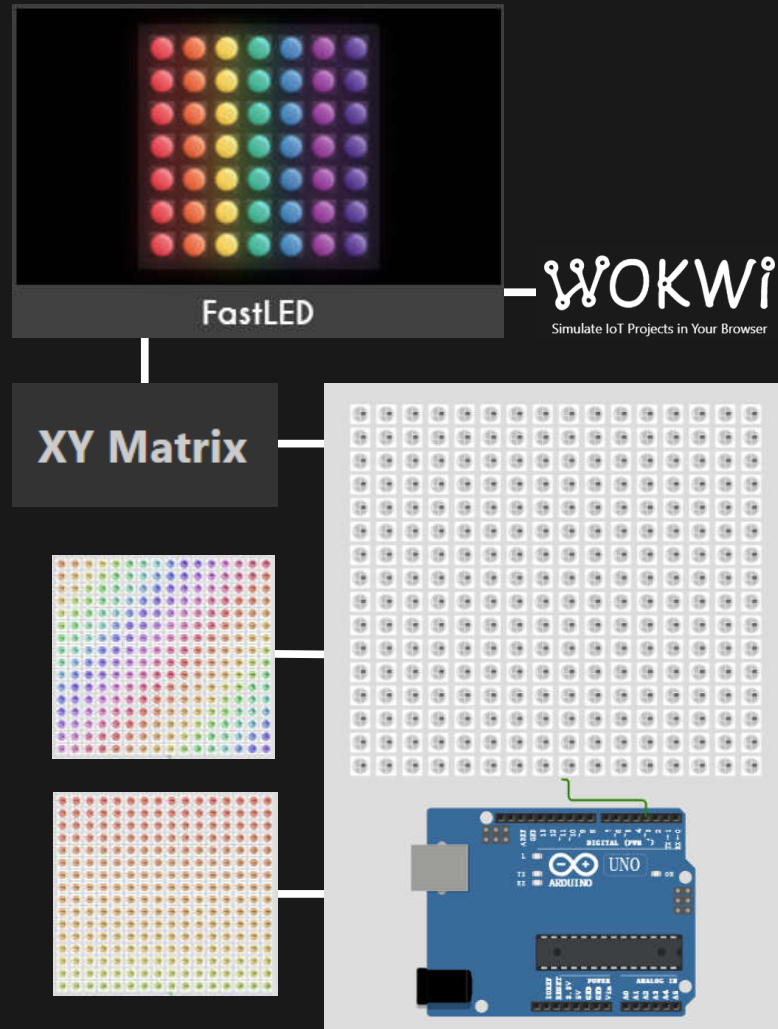
有没有什么替代方案呢？

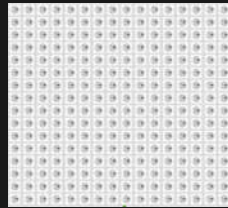
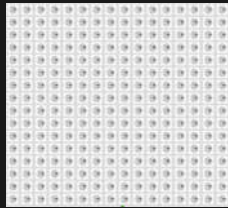
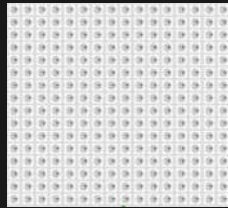
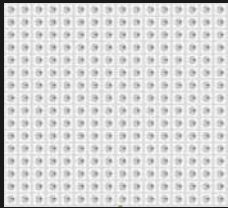
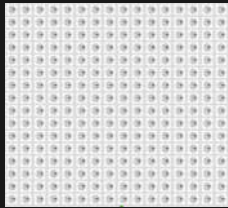
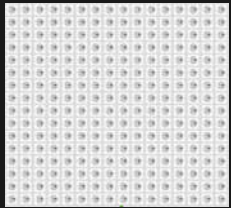


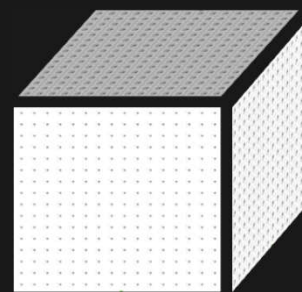
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有的







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光方块

Arduino会梦到光立方吗？

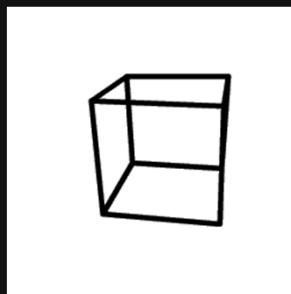
[程序] 王乐研 [不是程序] 戈虹杰



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主题猫述



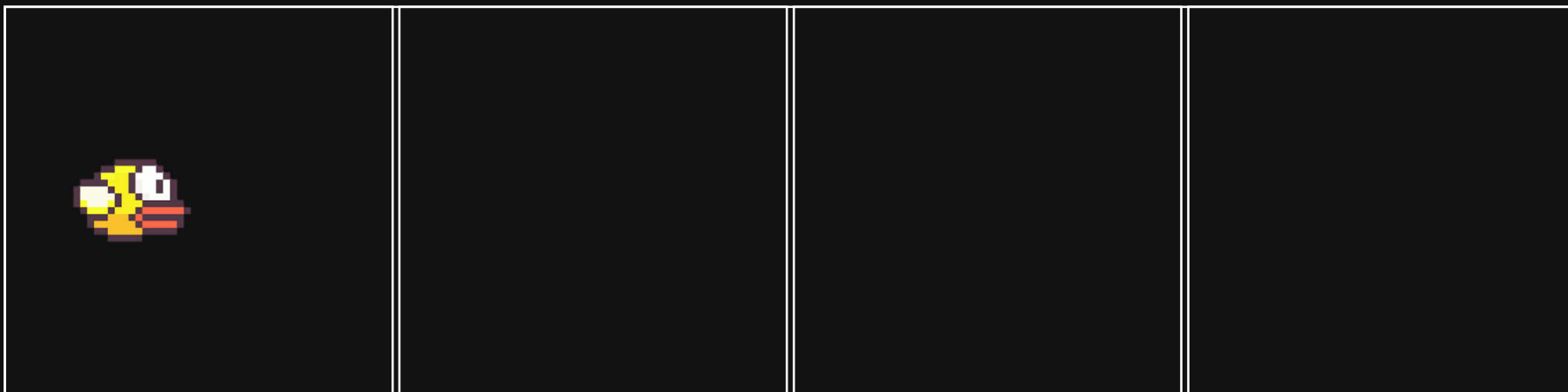
光方块

+

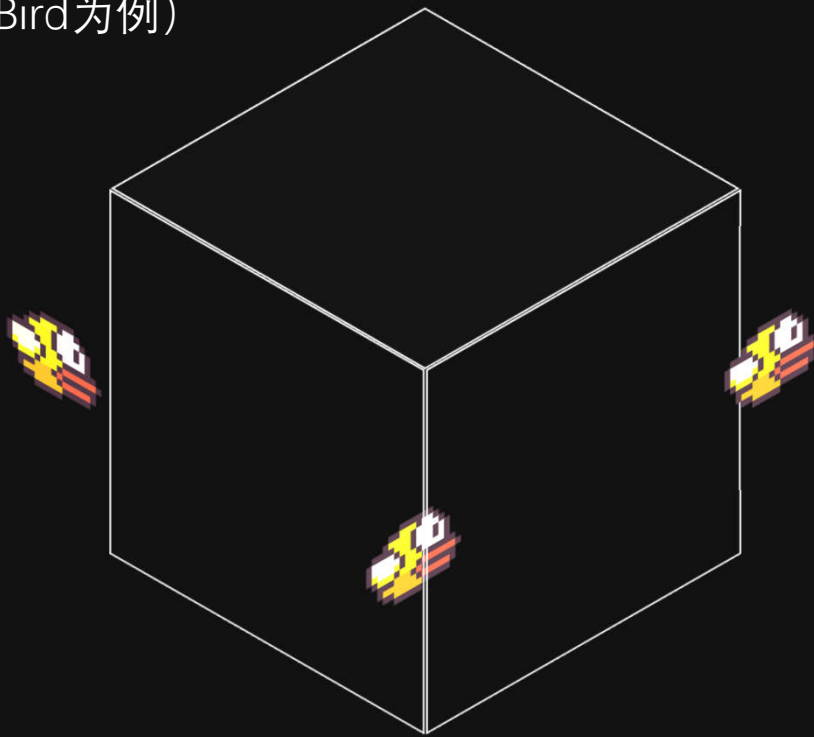


简单2D游戏

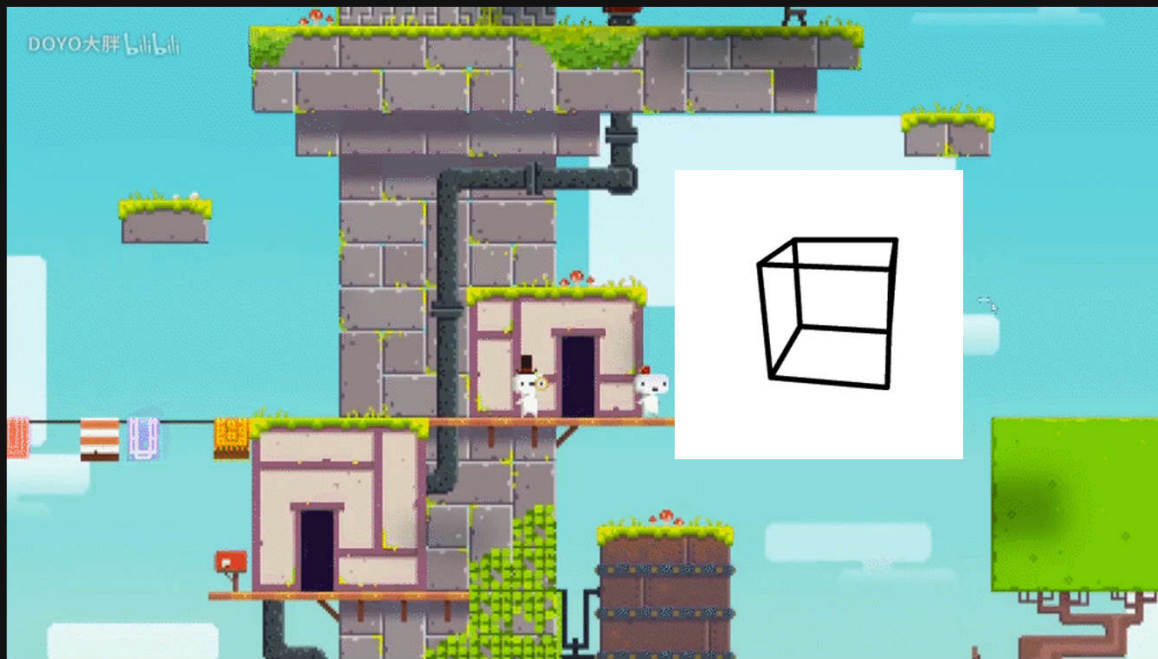
主题猫述 (以Flappy Bird为例)



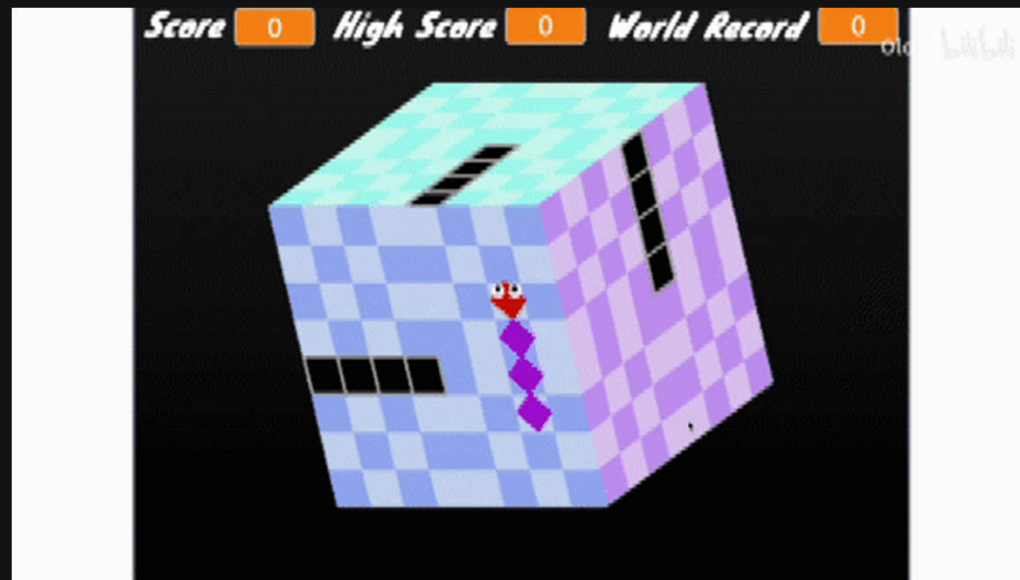
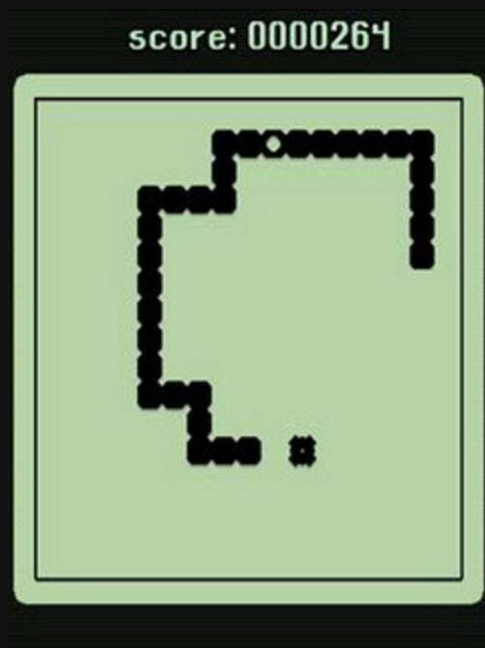
主题猫述 (以Flappy Bird为例)



主题猫述 (选哪个游戏?)



主题猫述



设计草图

数字RGB灯珠



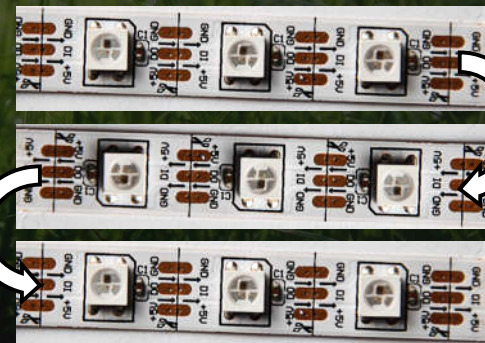
(WS2811 LED)



灯带

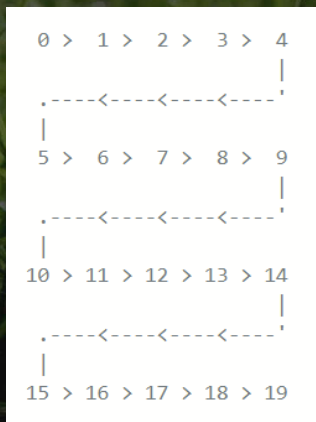
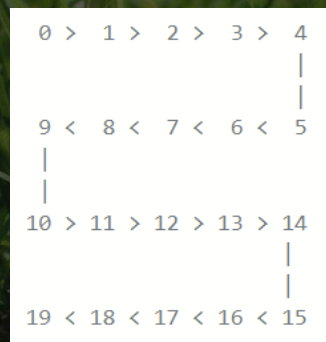
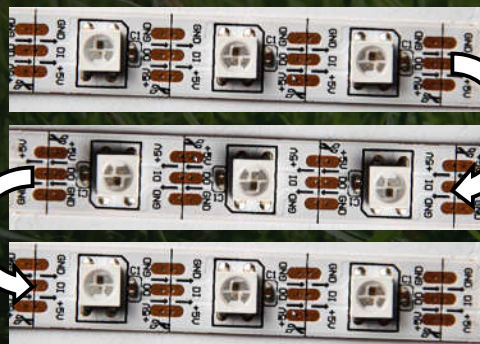


灯阵

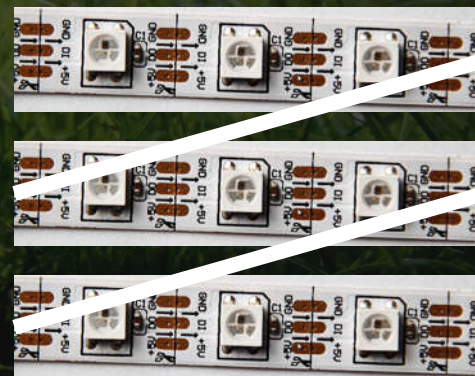


设计草图

灯阵



灯阵



设计草图

9x9的灯阵

9x9的灯阵

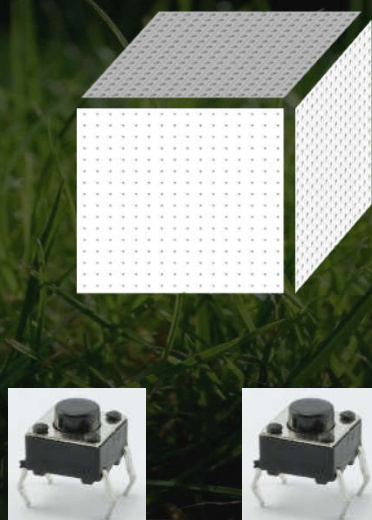
9x9的灯阵

9x9的灯阵

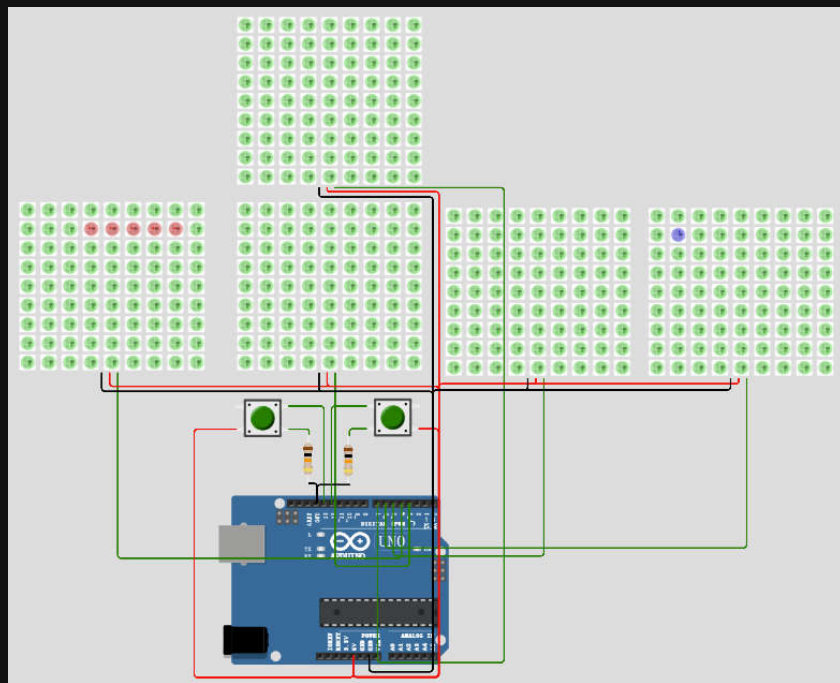
9x9的灯阵



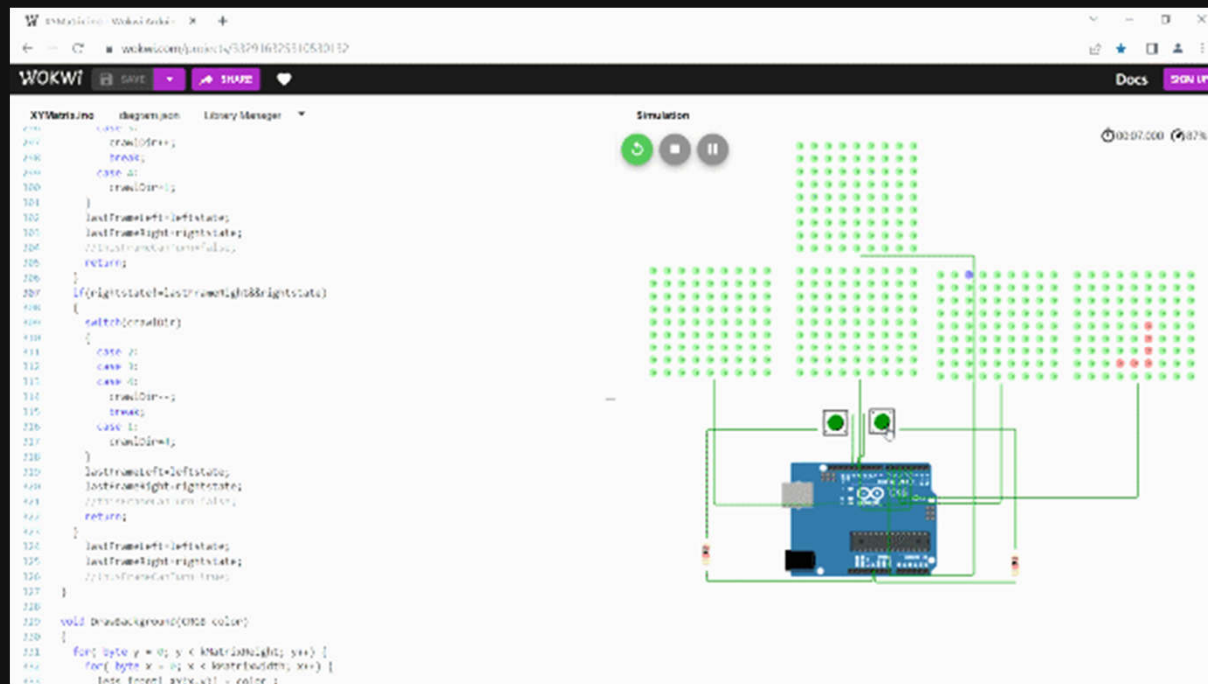
设计草图



系统连接框图



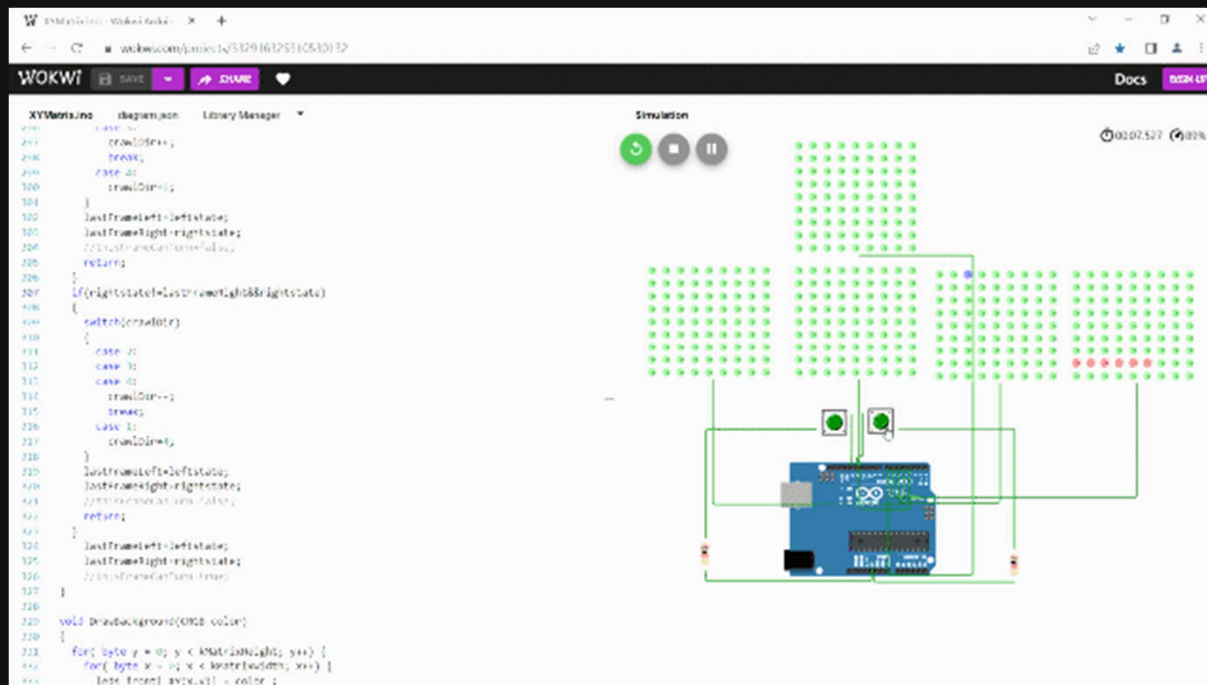
交互演示



代码展示(按键输入)

```
void changeDir(){
    boolean leftstate=digitalRead(BUTTON_LEFT);
    boolean rightstate=digitalRead(BUTTON_RIGHT);

    if(leftstate!=lastFrameLeft&&leftstate)
    {
        switch(crawlDir)
        {
            case 1:
            case 2:
            case 3:
                crawlDir++;
                break;
            case 4:
                crawlDir=1;
        }
        lastFrameLeft=leftstate;
        lastFrameRight=rightstate;
        //thisFrameCanTurn=false;
        return;
    }
    if(rightstate!=lastFrameRight&&rightstate)
    {
        switch(crawlDir)
        {
            case 1:
            case 2:
            case 3:
                crawlDir--;
                break;
            case 4:
                crawlDir=4;
        }
        lastFrameLeft=leftstate;
        lastFrameRight=rightstate;
        //thisFrameCanTurn=false;
        return;
    }
}
```

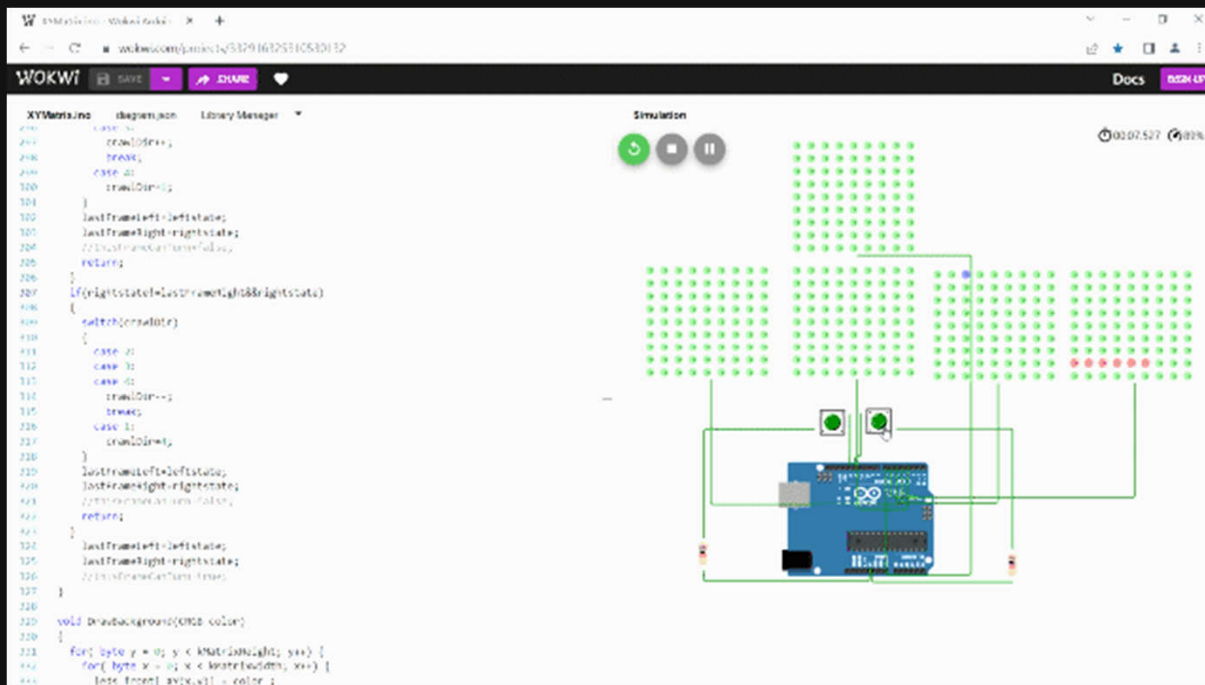


代码展示(状态更新)

```
void loop()
{
    unsigned long currentTime=millis();
```

```
if(currentTime - previousTime > interval){
    previousTime=currentTime;

    thisFrameCanTurn=true;
    if(!getLonger)
    {
        SnakeCrawl();
    }
    else
    {
        GetLonger();
    }
    DrawBackground(BACKGROUND_COLOR);
    EatFood();
}
```



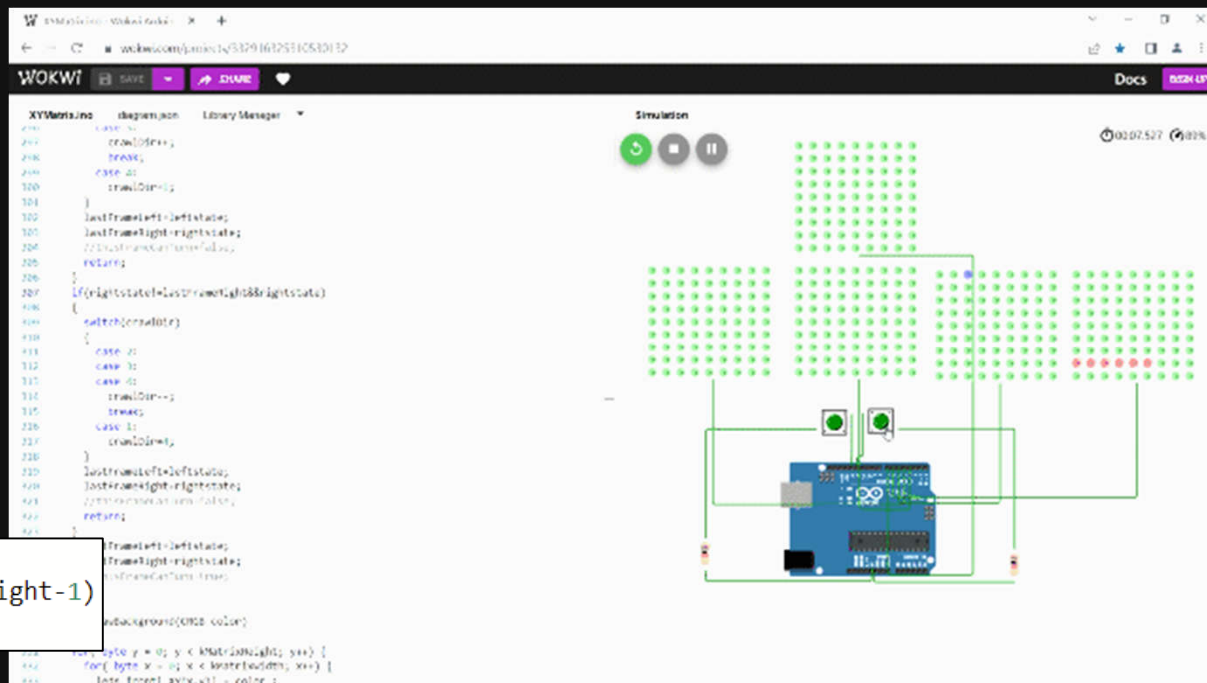
代码展示(穿梭)

```
void HeadMove(point &head)
{
    switch(crawlDir)
    {
        case 1:
            if(head.x==kMatrixWidth-1)
            {
                switch(head.locateArea)
                {
                    case 0:
                        head.locateArea=3;
                        head.x=0;
                        break;
                    case 1:
                        head.locateArea=2;
                        head.x=0;
                        break;
                    case 2:
                        head.locateArea=3;
                        head.x=0;
                        break;
                    case 3:
                        head.locateArea=0;
                        head.x=0;
                        break;
                }
            }
    }
}
```

case 2:
if(pointsInfo[0].y==0)
{

case 3:
if(pointsInfo[0].x==0)
{

case 4:
if(pointsInfo[0].y==kMatrixHeight-1)
{



感谢观看



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