int ANIMDELAY = 100; // animation delay, default value is 100

int INTENSITYMIN = 0; // minimum brightness, valid range [0,15]

int INTENSITYMAX = 8; // maximum brightness, valid range [0,15]

int DIN\_PIN = 2; // data in pin

int CS\_PIN = 3; // load (CS) pin

int CLK\_PIN = 4; // clock pin

// MAX7219 registers

byte MAXREG\_DECODEMODE = 0x09;

byte MAXREG\_INTENSITY = 0x0a;

byte MAXREG\_SCANLIMIT = 0x0b;

byte MAXREG\_SHUTDOWN = 0x0c;

byte MAXREG\_DISPTEST = 0x0f;

const unsigned char ribbon[] =

{

B00010000,

B00101000,

B00101000,

B00011000,

B00011000,

B00010100,

B00100010,

B01000001

};

void setup ()

{

pinMode(DIN\_PIN, OUTPUT);

pinMode(CLK\_PIN, OUTPUT);

pinMode(CS\_PIN, OUTPUT);

// initialization of the MAX7219

setRegistry(MAXREG\_SCANLIMIT, 0x07);

setRegistry(MAXREG\_DECODEMODE, 0x00); // using an led matrix (not digits)

setRegistry(MAXREG\_SHUTDOWN, 0x01); // not in shutdown mode

setRegistry(MAXREG\_DISPTEST, 0x00); // no display test

setRegistry(MAXREG\_INTENSITY, 0x0f & INTENSITYMIN);

// draw ribbonh

setRegistry(1, ribbon[0]);

setRegistry(2, ribbon[1]);

setRegistry(3, ribbon[2]);

setRegistry(4, ribbon[3]);

setRegistry(5, ribbon[4]);

setRegistry(6, ribbon[5]);

setRegistry(7, ribbon[6]);

setRegistry(8, ribbon[7]);

}

void loop ()

{

// second beat

setRegistry(MAXREG\_INTENSITY, 0x0f & INTENSITYMAX);

delay(ANIMDELAY);

// switch off

setRegistry(MAXREG\_INTENSITY, 0x0f & INTENSITYMIN);

delay(ANIMDELAY);

// second beat

setRegistry(MAXREG\_INTENSITY, 0x0f & INTENSITYMAX);

delay(ANIMDELAY);

// switch off

setRegistry(MAXREG\_INTENSITY, 0x0f & INTENSITYMIN);

delay(ANIMDELAY\*6);

}

void setRegistry(byte reg, byte value)

{

digitalWrite(CS\_PIN, LOW);

putByte(reg); // specify register

putByte(value); // send data

digitalWrite(CS\_PIN, LOW);

digitalWrite(CS\_PIN, HIGH);

}

void putByte(byte data)

{

byte i = 8;

byte mask;

while (i > 0)

{

mask = 0x01 << (i - 1); // get bitmask

digitalWrite( CLK\_PIN, LOW); // tick

if (data & mask) // choose bit

digitalWrite(DIN\_PIN, HIGH); // send 1

else

digitalWrite(DIN\_PIN, LOW); // send 0

digitalWrite(CLK\_PIN, HIGH); // tock

--i; // move to lesser bit

}

}