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/*
  Demonstrating use of 74HC238 with Arduino
 John Boxall - http://tronixstuff.com/partreviews > 74HC238
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 74HC238 pinouts:
 Y0~Y7 > 39 ohm resistor > LED (3.2V forward voltage) > ground;
 A0~A2 >> Arduino digital 2~4
 E1, E2 >> ground
 E3 > Arduino digital 5
 16 > +5V

 */

int A0 = 2;
int A1 = 3;
int A2 = 4;
int E3 = 5;
int d = 0; // for delay

void setup()
{
  pinMode(A0, OUTPUT);
  pinMode(A1, OUTPUT);
  pinMode(A2, OUTPUT);
  pinMode(E3, OUTPUT);
}

void allLow()
// sets all outputs to LOW
{
  digitalWrite(E3, LOW);
}

void turnOn(int outputPin)
// turns on output at pin 'outputPin'
{
  digitalWrite(E3, HIGH); // enables outputs
  switch(outputPin)
  {
  case 0:
    digitalWrite(A0, LOW);
    digitalWrite(A1, LOW);
    digitalWrite(A2, LOW);
    break;
  case 1:
    digitalWrite(A0, HIGH);
    digitalWrite(A1, LOW);
    digitalWrite(A2, LOW);
    break;
  case 2:
    digitalWrite(A0, LOW);
    digitalWrite(A1, HIGH);
    digitalWrite(A2, LOW);
    break;
  case 3:
    digitalWrite(A0, HIGH);
    digitalWrite(A1, HIGH);
    digitalWrite(A2, LOW);
    break;
  case 4:
    digitalWrite(A0, LOW);
    digitalWrite(A1, LOW);
    digitalWrite(A2, HIGH);
    break;
  case 5:
    digitalWrite(A0, HIGH);
    digitalWrite(A1, LOW);
    digitalWrite(A2, HIGH);
    break;
  case 6:
    digitalWrite(A0, LOW);
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    digitalWrite(A1, HIGH);
    digitalWrite(A2, HIGH);
    break;
  case 7:
    digitalWrite(A0, HIGH);
    digitalWrite(A1, HIGH);
    digitalWrite(A2, HIGH);
    break;
  }
}

void emulateKITT(int dd)
{
  for (int i=0; i<8; i++)
  {
    turnOn(i);
    delay(dd);
  }
  for (int i=7; i>=0; --i)
  {
    turnOn(i);
    delay(dd);
  }
  allLow();
}

void allOn(int dd)
// scans all outputs on to emulate all being on at once for 'dd' cycles
{
  for (int j=0; j<dd; j++)
  {
    for (int i=0; i<8; i++)
    {
      turnOn(i);
    }
  }
    allLow();
}

void loop()
{
  emulateKITT(100);
  delay(1000);
  allOn(10000);
  delay(1000);
}
```