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// This program uses arrays and a shift register to display the numbers.
// The code is entered as three numerals in the integers.
// The digits are selected using the pot and the button.
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int Data = 4;
int klock = 5;
int latch = 6;
int Locked = 8; //Red LED
int Open = 9; //Green LED
int button = A0;
int pot = A1;

int code1 = 3;
int code2 = 10;
int code3 = 5;
int digit1;
int digit2;
int digit3;
int potvalue;
int selectedNum;
int bitNum = 0;
int numMatrix[12][8]{
  //g,f,e,d,c,b,a,na <<< segments
  {0,1,1,1,1,1,1,0}, //ZERO
  {0,0,0,0,1,1,0,0}, //ONE
  {1,0,1,1,0,1,1,0}, //TWO
  {1,0,0,1,1,1,1,0}, //THREE
  {1,1,0,0,1,1,0,0}, //FOUR
  {1,1,0,1,1,0,1,0}, //FIVE
  {1,1,1,1,1,0,1,0}, //SIX
  {0,0,0,0,1,1,1,0}, //SEVEN
  {1,1,1,1,1,1,1,0}, //EIGHT
  {1,1,0,1,1,1,1,0}, //NINE
  {0,0,0,0,0,0,0,0}, //blank
  {1,0,0,0,0,0,0,0}, //dash
};

void Klocking(){
  digitalWrite(klock,1);
  digitalWrite(klock,0);
}

void Latch(){
  digitalWrite(latch,1);
  digitalWrite(latch,0);
}

void selecting(){
  while(digitalRead(button) == LOW){
    potvalue = analogRead(pot);
    selectedNum = potvalue/100;
    for(bitNum = 0;bitNum < 8;bitNum++){
      digitalWrite(Data,numMatrix[selectedNum][bitNum]);
      Klocking();
    }
    Latch();
    delay(10);
  }
}
```



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void dispBlank() {
    for (bitNum = 0; bitNum < 8; bitNum++) {
        digitalWrite(Data, numMatrix[10][bitNum]);
        Klocking();
    }
    Latch();
}

void dispDash() {
    for (bitNum = 0; bitNum < 8; bitNum++) {
        digitalWrite(Data, numMatrix[11][bitNum]);
        Klocking();
    }
    Latch();
}

void setup() {
    pinMode(Data, OUTPUT);
    pinMode(klock, OUTPUT);
    pinMode(latch, OUTPUT);
    pinMode(Locked, OUTPUT);
    pinMode(Open, OUTPUT);
    pinMode(button, INPUT);
    pinMode(pot, INPUT);
}

void loop() {
    digitalWrite(Locked, 1);
    digitalWrite(Open, 0);
    dispBlank();
    delay(2000);
    while (digitalRead(button) == LOW);
    delay(500);
    selecting();
    dispDash();
    digit1 = selectedNum;
    delay(500);
    selecting();
    dispDash();
    digit2 = selectedNum;
    delay(500);
    selecting();
    dispDash();
    digit3 = selectedNum;
    delay(500);
    if (digit1 == code1 && digit2 == code2 && digit3 == code3) {
        digitalWrite(Locked, 0);
        digitalWrite(Open, 1);
        delay(2000);
        while (digitalRead(button) == LOW);
    }
    else {
        for (int rep = 0; rep < 8; rep++) {
            digitalWrite(Locked, 1);
            delay(100);
            digitalWrite(Locked, 0);
            delay(100);
        }
    }
}
}

```

