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#define step_pin 6 // Pin 6 connected to Step
#define dir_pin 5 // Pin 5 connected to Direction
#define KEY 4 // Pin 4 connected to Key
#define SLEEP 9 // Pin 9 connected to SLEEP
#define START 3 // Pin 3 connected to Start
#define HSW 10 //Pin 10 connected to Home(Top of hill)Hall board
#define BSW 11 //Pin 11 connected to Middle(Middle of hill)Hall board
#define SSW 12 //Pin 12 connected to Switch(By the switch)Hall board

const int Top = 1; // Top of hill
const int Bottom = 2; // At bottom of hill

const int Switch = 3; // At switch loacation

int POS = 0; //Current Location
int Dwell = 500; //Set delay time between movements
void setup() {

  Serial.begin(9600);
  Serial.println("Nampa Coal Dump 3 Hall Boards");
  Serial.println(__FILE__);
  Serial.println(__DATE__);

  pinMode(dir_pin, OUTPUT);
  pinMode(step_pin, OUTPUT);
  pinMode(SLEEP, OUTPUT);
  pinMode(START, INPUT_PULLUP);
  pinMode(KEY, INPUT_PULLUP);
  pinMode(HSW, INPUT_PULLUP);
  pinMode(BSW, INPUT_PULLUP);
  pinMode(SSW, INPUT_PULLUP);
  delay(5000);

  {
    // Do Home routine
    while (digitalRead(HSW) == HIGH)

    {
      digitalWrite(SLEEP, HIGH);
      digitalWrite(dir_pin, HIGH); // (HIGH = positive / LOW = negative)
      digitalWrite(step_pin, HIGH);
      delayMicroseconds(750);
      digitalWrite(step_pin, LOW);
      delayMicroseconds(750);

    }

  }

  digitalWrite(SLEEP, LOW); //Put Driver to Sleep
  delay(50);

  POS = 1; // Set current location to 1 Top

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}

void loop() {
  // move from Top to Bottom with start only
  if ((digitalRead(START) == LOW) && (digitalRead(KEY) == LOW) && (POS) == 1)

  {
    digitalWrite(SLEEP, HIGH);
    delay(50); // Wait for Driver wake up
    while (digitalRead(BSW) == HIGH) {
      digitalWrite(dir_pin, LOW); // (HIGH = positive / LOW = negative)
      digitalWrite(step_pin, HIGH);
      delayMicroseconds(750);
      digitalWrite(step_pin, LOW);
      delayMicroseconds(750);

    }
    delay(Dwell);
    POS = 2; // Set current location to 2 Bottom
  }
  //Move from Bottom to Top with start only
  if ((digitalRead(START) == LOW) && (digitalRead(KEY) == LOW) && (POS) == 2)

  {
    digitalWrite(SLEEP, HIGH);
    delay(50); // Wait for Driver wake up
    while (digitalRead(HSW) == HIGH) {
      digitalWrite(dir_pin, HIGH); // (HIGH = positive / LOW = negative)
      digitalWrite(step_pin, HIGH);
      delayMicroseconds(750);
      digitalWrite(step_pin, LOW);
      delayMicroseconds(750);

    }

    delay(Dwell);
    POS = 1; // Set current location to 1 Top
  }
  //Move from Switch to Top with Start only
  if ((digitalRead(START) == LOW) && (digitalRead(KEY) == LOW) && (POS) == 3)

  {
    digitalWrite(SLEEP, HIGH);
    delay(50); // Wait for Driver wake up
    while (digitalRead(HSW) == HIGH) {
      digitalWrite(dir_pin, HIGH); // (HIGH = positive / LOW = negative)
      digitalWrite(step_pin, HIGH);
      delayMicroseconds(750);
      digitalWrite(step_pin, LOW);
      delayMicroseconds(750);

    }

    delay(Dwell);
    POS = 1; // Set current location to 1 Top
  }
  //Move from Top to Switch with Start and Key

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if ((digitalRead(START) == LOW) && (digitalRead(KEY) == HIGH) && (POS) == 1)
{
    digitalWrite(SLEEP, HIGH);
    delay(50); // Wait for Driver wake up
    while (digitalRead(SSW) == HIGH) {
        digitalWrite(dir_pin, LOW); // (HIGH = positive / LOW = negative)
        digitalWrite(step_pin, HIGH);
        delayMicroseconds(750);
        digitalWrite(step_pin, LOW);
        delayMicroseconds(750);
    }
    delay(Dwell);
    POS = 3; // Set current location to 3 Switch
}
//Move from Bottom to Switch with Start and Key
if ((digitalRead(START) == LOW) && (digitalRead(KEY) == HIGH) && (POS) == 2)
{
    digitalWrite(SLEEP, HIGH);
    delay(50); // Wait for Driver wake up
    while (digitalRead(SSW) == HIGH) {
        digitalWrite(dir_pin, LOW); // (HIGH = positive / LOW = negative)
        digitalWrite(step_pin, HIGH);
        delayMicroseconds(750);
        digitalWrite(step_pin, LOW);
        delayMicroseconds(750);
    }
    delay(Dwell);
    POS = 3; // Set current location to 3 Switch
}
//Move from Switch to Top with Start and Key
if ((digitalRead(START) == LOW) && (digitalRead(KEY) == HIGH) && (POS) == 3)
{
    digitalWrite(SLEEP, HIGH);
    delay(50); // Wait for Driver wake up
    while (digitalRead(HSW) == HIGH) {
        digitalWrite(dir_pin, HIGH); // (HIGH = positive / LOW = negative)
        digitalWrite(step_pin, HIGH);
        delayMicroseconds(750);
        digitalWrite(step_pin, LOW);
        delayMicroseconds(750);
    }

    delay(Dwell);
    POS = 1; //Set position to
}
digitalWrite(SLEEP, LOW);
delay(50);
}

```