Mise en œuvre M5Stack + Driver Module

J'utilise un M5Stack BASIC v2.6. Il faut dans l'IDE Arduino de choisir un M5Stack-Station dans le type de microcontroleur, et limiter les vitesses d'upload.

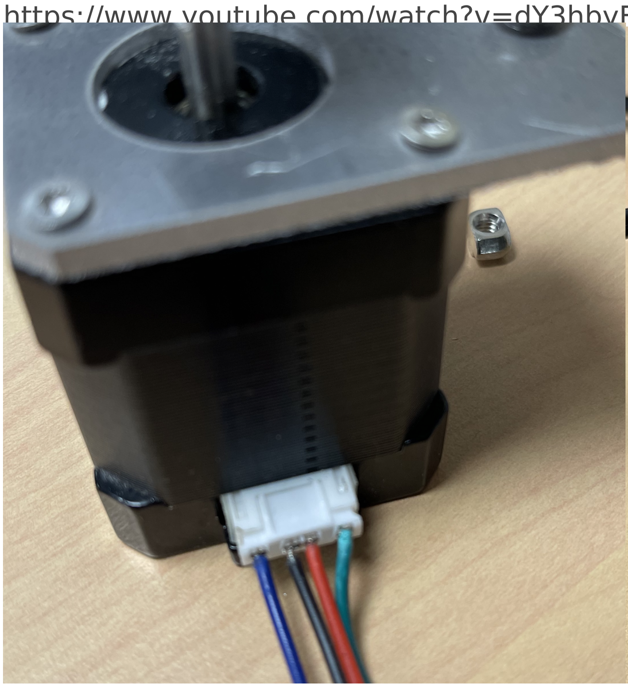
D'autre part, j'utilise le Stepmotor Driver Module 13.2. Il dispose de 3 drivers X,Y,Z et de 4 switchs de fin de course.

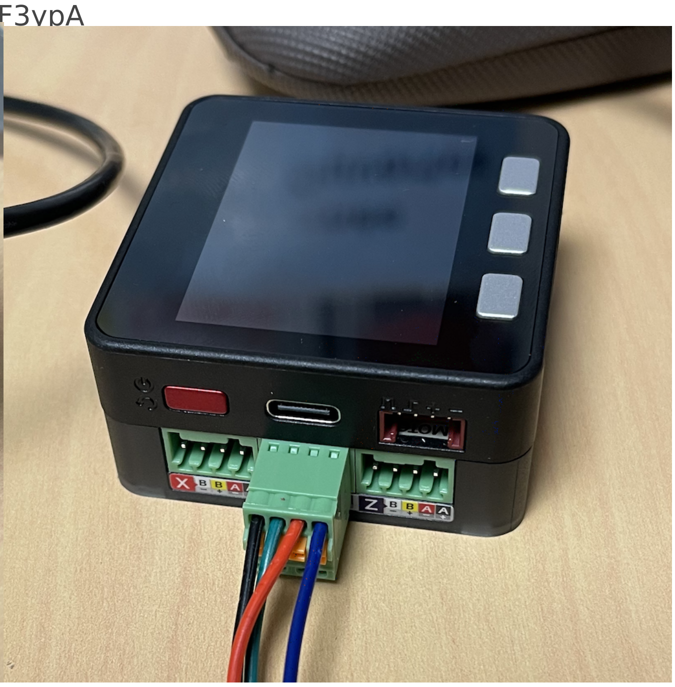
C'est donc en principe suffisant pour ce que je cherche à faire.

Les moteurs sont des MOTECH MT-170HS168A, à 1,8°/pas. Les moteurs disposent de connecteurs 6 pins JST-PH (espacement 2.0mm), mais sont quadrupolaires... Après avoir acheté un coffret de connecteurs à sertir, on commence donc par identifier les bobines à l'aide d'un multimètre.

Le meilleur tutoriel pour avoir le bon geste de sertissage et éviter d'y passer des heures de frustration :

https://www.youtube.com/watch?v=dY3hbyF3ypA





Un M5Stack et module driver brûlés par faute d'un déplacement intempestif, on arrive à faire fonctionner l'exemple produit ici

```
/*
********************************************************************************
* Copyright (c) 2021 by M5Stack
*                  Equipped with M5Core sample source code
*                          □□  M5Core □□□□□
* Visit for more
information□https://docs.m5stack.com/en/module/stepmotor_driver
* □□□□□□□□□https://docs.m5stack.com/zh_CN/module/stepmotor_driver
*
* Describe: Stepmotor With Pluse.
* Date: 2021/11/14
********************************************************************************
  StepMotor Driver Module TEST Example,Directly drive the motor using pulse
signals. □□□□□□□□□□,□□□□□□□□□□□□
*/
#include "M5Stack.h"
#include "Module_Stepmotor.h"
#include "freertos/FreeRTOS.h"
#include "freertos/task.h"

// #define VERSION_1_0

String inputString  = "";
bool stringComplete = false;

static Module_Stepmotor driver;

void setup() {
    M5.begin(true, false, true, false);
    M5.Lcd.clear(TFT_BLACK);
    M5.Lcd.setTextSize(2);
    M5.Lcd.setTextColor(TFT_GREEN);
    M5.Lcd.setTextDatum(MC_DATUM);
    M5.Lcd.drawString("DIRECT_STEPMOTOR", 160, 10, 2);
    M5.Lcd.setTextColor(TFT_YELLOW);
    M5.Lcd.drawString("LIMIT IO STATUS", 160, 90, 2);
    M5.Lcd.drawString("DIR", 70, 220, 2);
```

```
#ifndef VERSION_1_0
    M5.Lcd.drawString("FAULT IO STATUS", 160, 160, 2);
    M5.Lcd.drawString("RST ALL", 160, 220, 2);
    M5.Lcd.drawString("1/1", 260, 220, 2);
#else
    M5.Lcd.drawString("STEP", 260, 220, 2);
#endif

    Wire.begin(21, 22, 400000UL);
    driver.init(Wire);

#ifndef VERSION_1_0
    driver.resetMotor(0, 0);
    driver.resetMotor(1, 0);
    driver.resetMotor(2, 0);
#else
    driver.setMicrostepResolution(DIRECT_STEPMOTOR::kMicrosteps16);
#endif

    driver.enableMotor(1);
    Serial1.begin(115200, SERIAL_8N1, 35, 5);
    Serial2.begin(115200, SERIAL_8N1, 34, 26);
    Serial2.setTimeout(100);

    ledcSetup(0, 10000, 8);
    ledcAttachPin(16, 0);
    ledcAttachPin(12, 0);
    ledcAttachPin(15, 0);
    ledcWrite(0, 127);

    pinMode(17, OUTPUT);
    pinMode(13, OUTPUT);
    pinMode(0, OUTPUT);

    digitalWrite(17, 1);
    digitalWrite(13, 1);
    digitalWrite(0, 1);
}

void loop() {
    static uint8_t step_dir                          = 1;
    static uint8_t reset_mtr                          = 0;
    static Module_Stepmotor::MicrostepResolution_t micro_res = Module_Stepmotor::kMicrosteps16;
    Serial1.print("Y");
    delay(25);
    M5.update();
    if (Serial2.available()) {
        char inChar = (char)Serial2.read();
        if (inChar == 'Y') {
            M5.Lcd.fillRect(105, 180, 120, 20, TFT_GREEN);
        }
    } else {
        M5.Lcd.fillRect(105, 180, 120, 20, TFT_RED);
    }
    if (M5.BtnA.wasPressed()) {
        step_dir = 1 - step_dir;
        digitalWrite(17, step_dir);
        digitalWrite(13, step_dir);
        digitalWrite(0, step_dir);
    }

    if (M5.BtnB.wasPressed()) {
#ifndef VERSION_1_0
        driver.resetMotor(0, 0);
        driver.resetMotor(1, 0);
        driver.resetMotor(2, 0);
        reset_mtr = 0;
#endif
    }

    if (M5.BtnC.wasPressed()) {
#ifndef VERSION_1_0
        if (reset_mtr == 0) {
            driver.resetMotor(0, 1);
            driver.resetMotor(1, 1);
            driver.resetMotor(2, 1);
        }
        driver.resetMotor(int(reset_mtr / 2), (reset_mtr & 0x01));
        reset_mtr += 1;
        if (reset_mtr == 6) reset_mtr = 0;
```

```
#else
        if (micro_res == DIRECT_STEPMOTOR::kMicrosteps16) {
            micro_res = DIRECT_STEPMOTOR::kMicrosteps8;
        } else {
            micro_res = DIRECT_STEPMOTOR::kMicrosteps16;
        }
        driver.setMicrostepResolution(micro_res);
#endif
    }

    driver.getExtIOStatus();
    if (driver.ext_io_status[3]) {
        M5.Lcd.fillRect(70, 45, 20, 20, TFT_RED);
    } else {
        M5.Lcd.fillRect(70, 45, 20, 20, TFT_GREEN);
    }

    if (driver.ext_io_status[2]) {
        M5.Lcd.fillRect(120, 45, 20, 20, TFT_RED);
    } else {
        M5.Lcd.fillRect(120, 45, 20, 20, TFT_GREEN);
    }

    if (driver.ext_io_status[1]) {
        M5.Lcd.fillRect(170, 45, 20, 20, TFT_RED);
    } else {
        M5.Lcd.fillRect(170, 45, 20, 20, TFT_GREEN);
    }

    if (driver.ext_io_status[0]) {
        M5.Lcd.fillRect(220, 45, 20, 20, TFT_RED);
    } else {
        M5.Lcd.fillRect(220, 45, 20, 20, TFT_GREEN);
    }
#ifndef VERSION_1_0
    driver.getFaultStatus();
    if (driver.fault_io_status[2]) {
        M5.Lcd.fillRect(95, 115, 20, 20, TFT_RED);
    } else {
        M5.Lcd.fillRect(95, 115, 20, 20, TFT_GREEN);
    }

    if (driver.fault_io_status[1]) {
        M5.Lcd.fillRect(145, 115, 20, 20, TFT_RED);
    } else {
        M5.Lcd.fillRect(145, 115, 20, 20, TFT_GREEN);
    }

    if (driver.fault_io_status[0]) {
        M5.Lcd.fillRect(195, 115, 20, 20, TFT_RED);
    } else {
        M5.Lcd.fillRect(195, 115, 20, 20, TFT_GREEN);
    }
#endif
}
```

Revision #1
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