

Plastic 3D Printer

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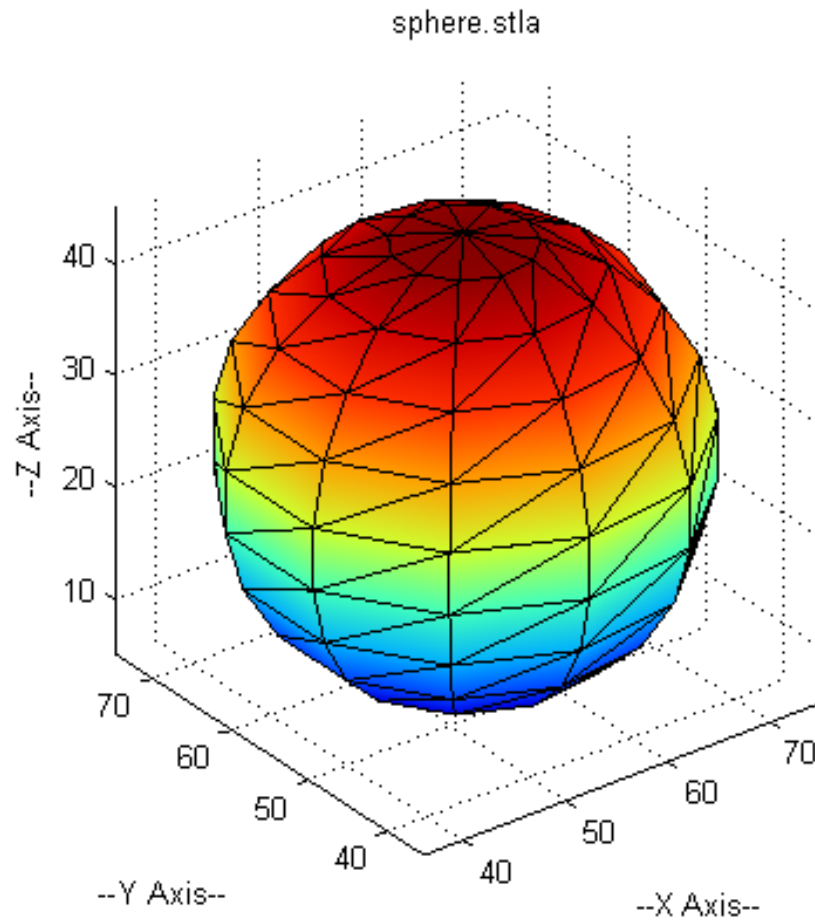


Outline

- Introduction
- Constraints
- Software
- Electronics and Controller
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- Results

Parabox 3D printer

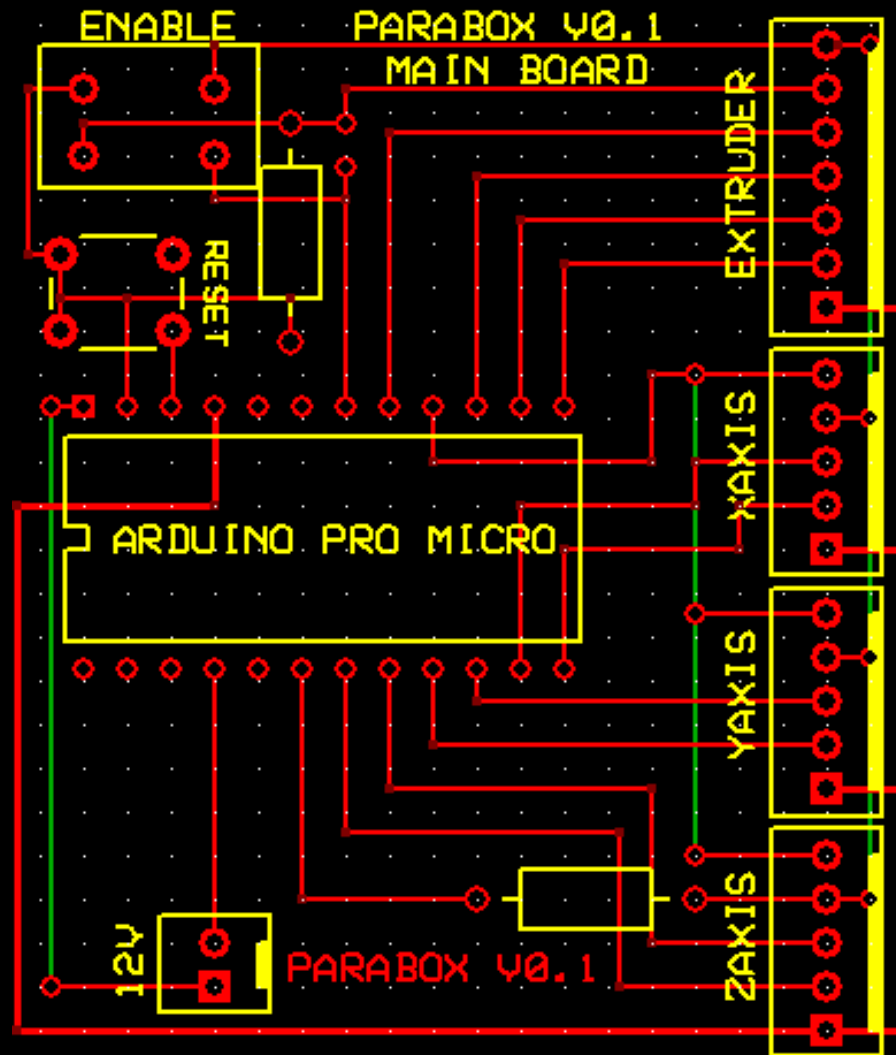
STL Files

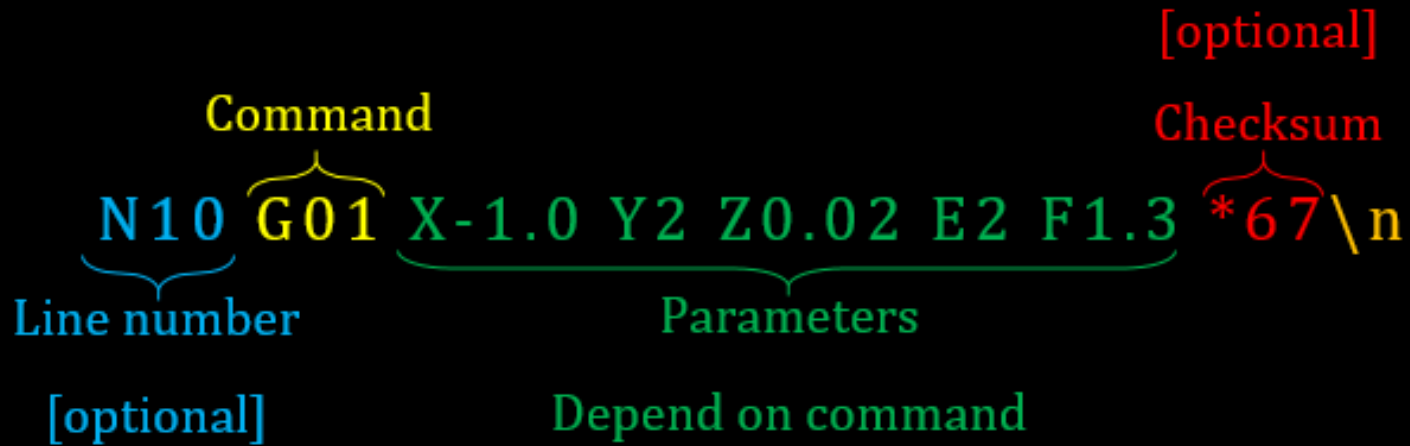


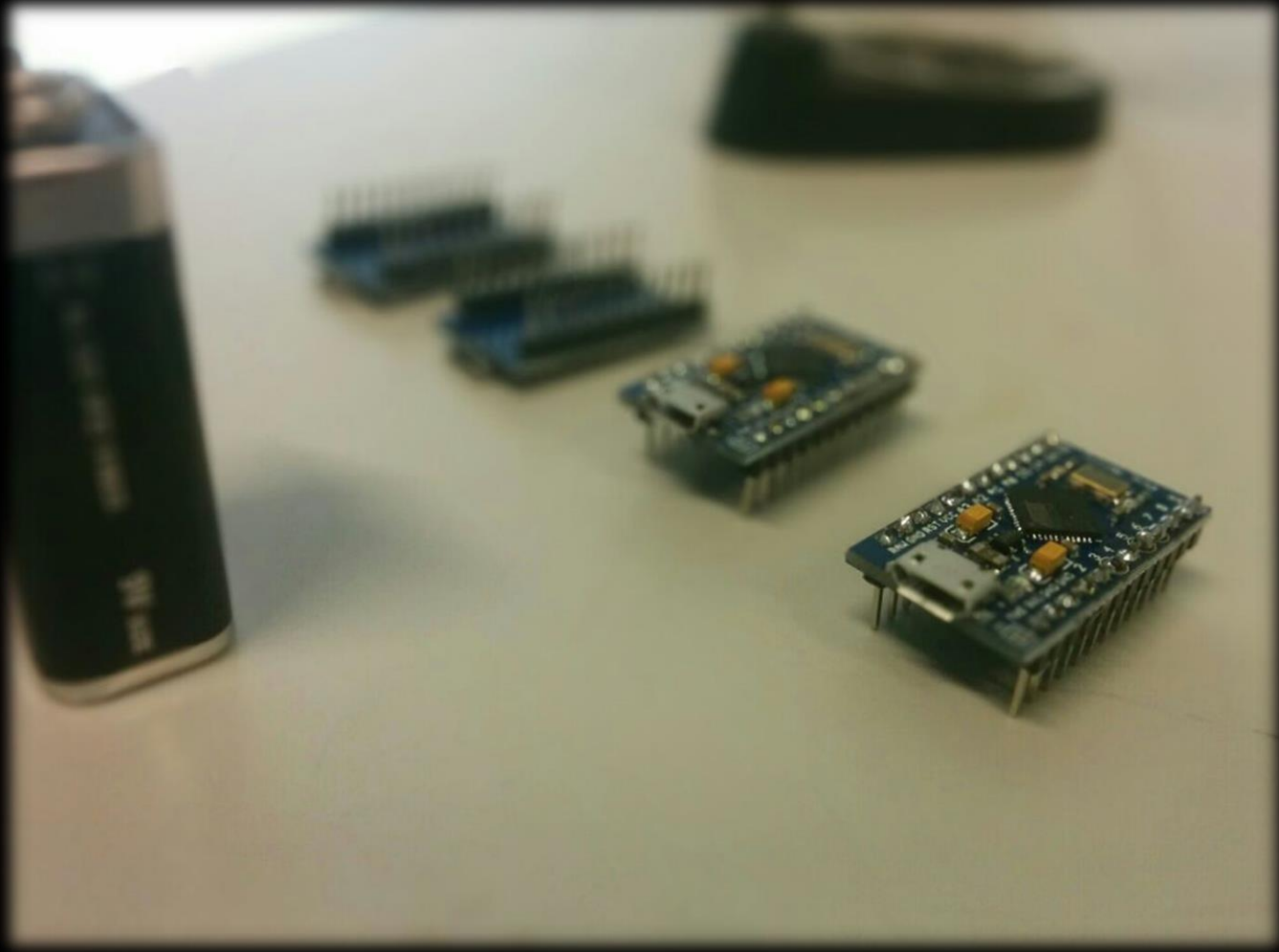


Electronics

Parabox 3D printer







Electronics

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```

#include "Axes.h"

volatile Axis Axes[4];
volatile SLONG axisPosition[4];
volatile SBYTE axisDirection[4];

void initAxes() {
    for(int i = 0; i < 4; i++){
        pinMode(MOVPORT[i], OUTPUT);
        pinMode(DIRPORT[i], OUTPUT);
        axisPosition[i] = 0;
        digitalWrite(MOVPORT[i], HIGH);
        digitalWrite(DIRPORT[i], INVERT[i]);
    }
}

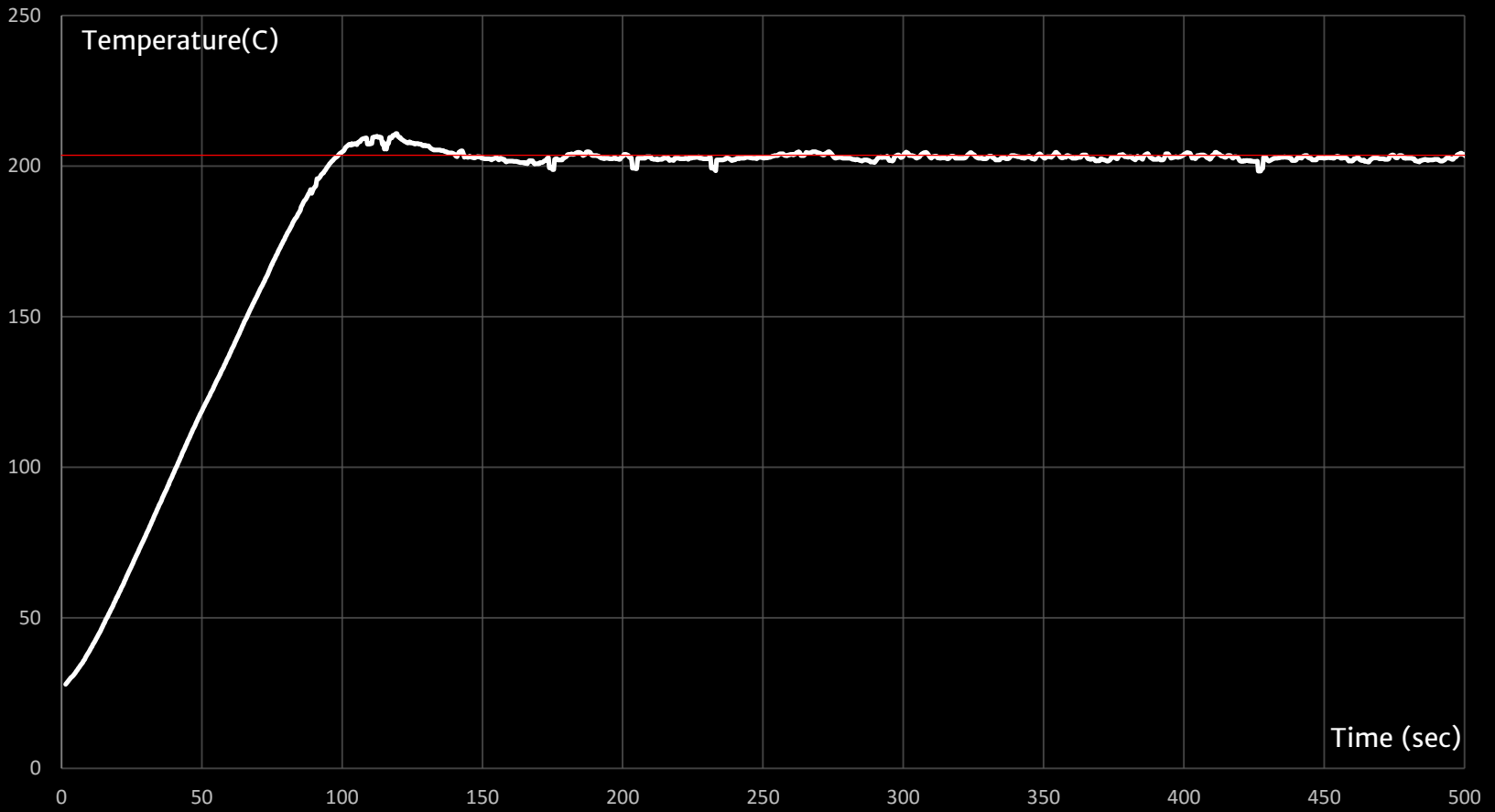
void resetAxes() {
    Axes[X].steps = 0;
    Axes[Y].steps = 0;
    Axes[Z].steps = 0;
    Axes[E].steps = 0;
}

bool moveAxis(AxisIndex axis, float distance, float rate) {

    if((FLAG[axis] & stateFlags) || (rate > MAXSPEED[axis])) return false;
    if(distance == 0) return true;

    axisDirection[axis] = ((distance < 0) xor (INVERT[axis]))?0:1;
    digitalWrite(DIRPORT[axis], axisDirection[axis]);
}

```

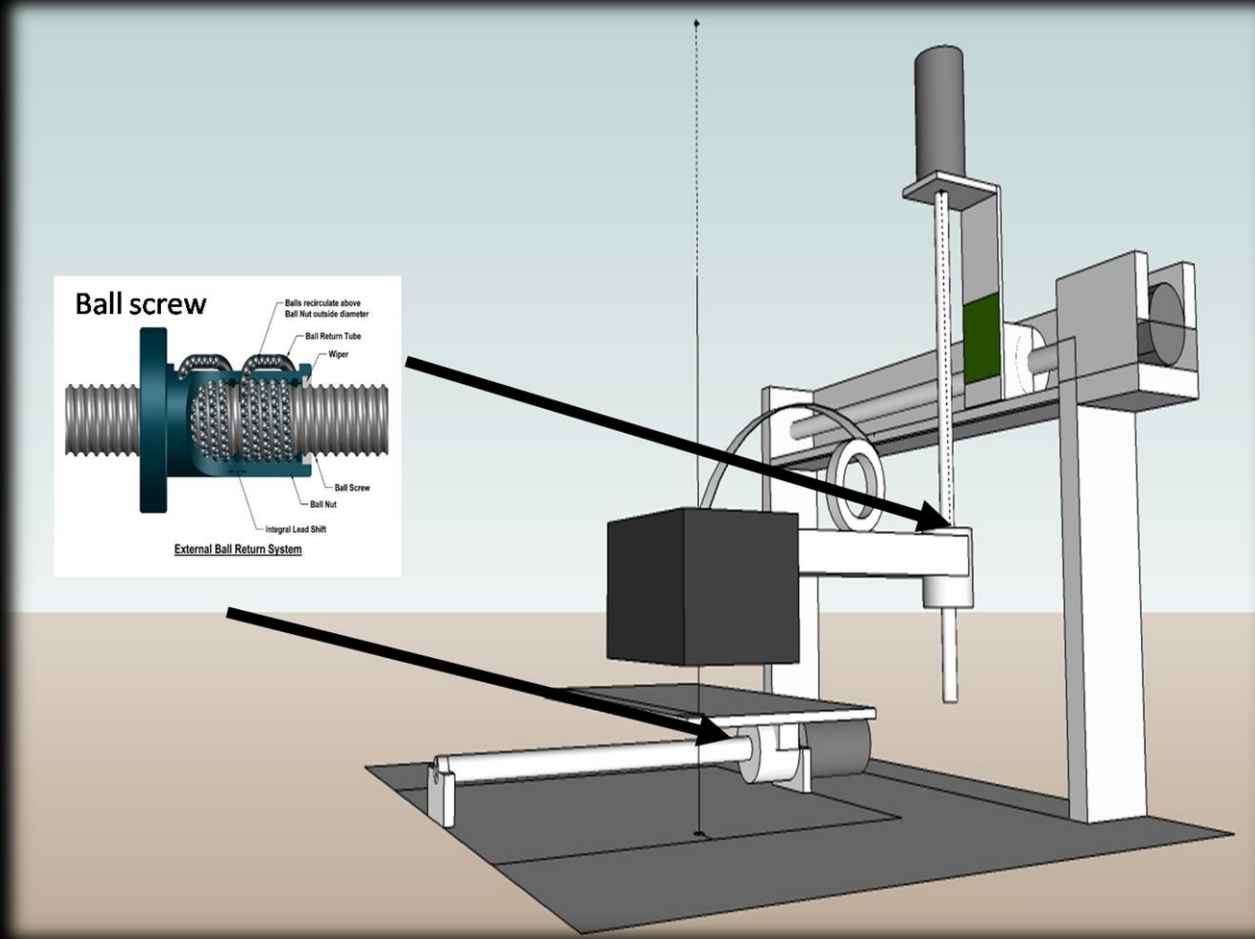




Hardware

Parabox 3D printer

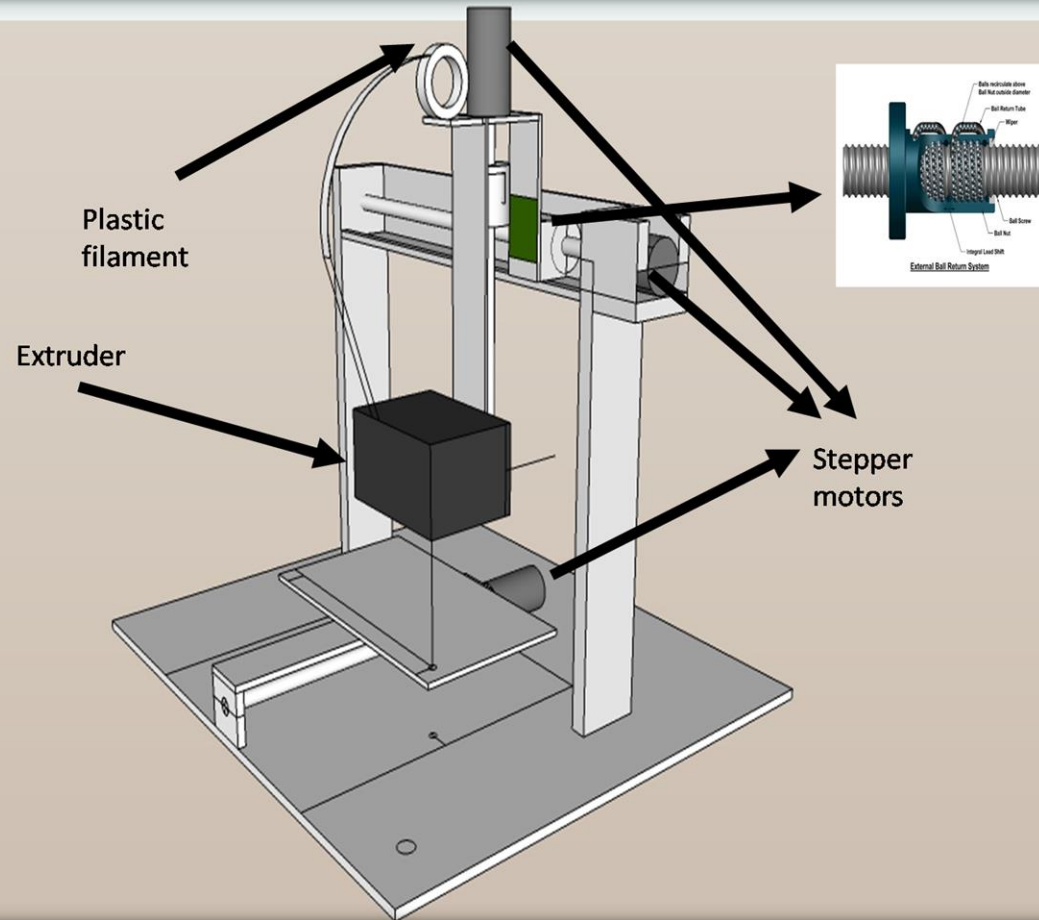
Design 1



Hardware

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Design 2



Hardware

Parabox 3D printer

Results



Hardware

Parabox 3D printer