



ROBO-FABRIC

NASA Space Apps Challenge 2015 Project
Burgas Free University, Bulgaria

ROBO-FABRIC

NASA SPACE APPS CHALLENGE 2015 PROJECT

BURGAS FREE UNIVERSITY, BULGARIA

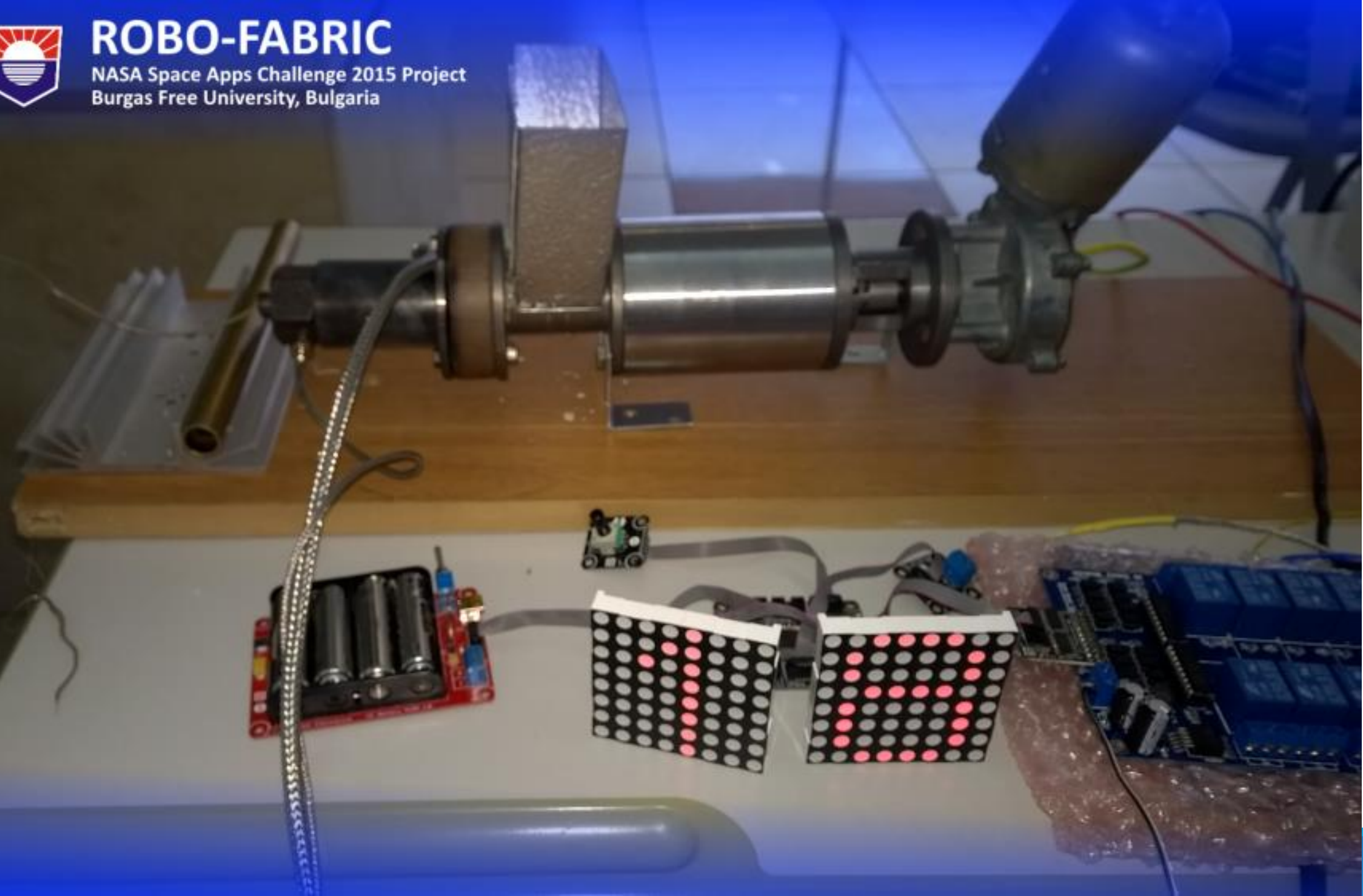
ROBO-FABRIC

is a project about the birth of a robot from waste plastics. This process has several steps which are executed separately as follows: On the first step an extruder machine uses ABS plastic material from old keyboards that we recycle to produce the filament material with 1.75 mm diameter for the 3D printer. On the second step we create 3d model of the chassis and the wheels of our rover. The third step is the RepRap Prusa i3 3D printer, that we build especially for NASA Space App Challenge 2015. Its job is to print all the plastic parts (chassis and wheels) for the rover. The fourth step in our project is assembling the final product - the rover. Its hardware is based on GHI Electronics .NET Gadgeteer hardware modules and the printed parts from the previous step. Its software part is programmed using Microsoft technologies: Visual Studio 2013, Micro .NET Framework Platform and C# programming language. The ROBO-FABRIC can be used for designing, modeling and printing the parts for various robotics projects and includes their assembly, electronics and programming.

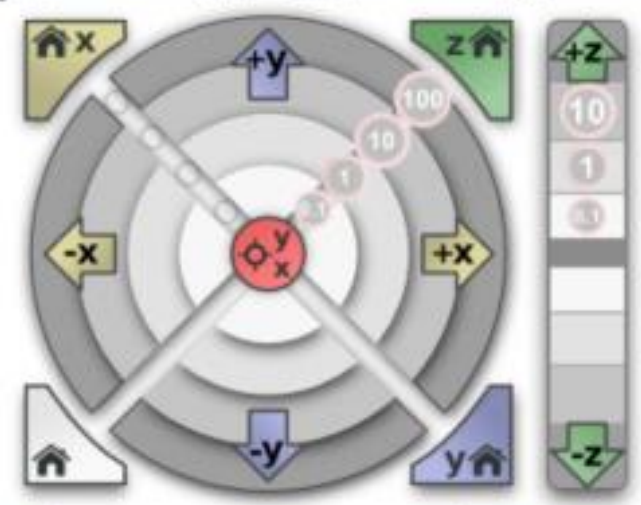


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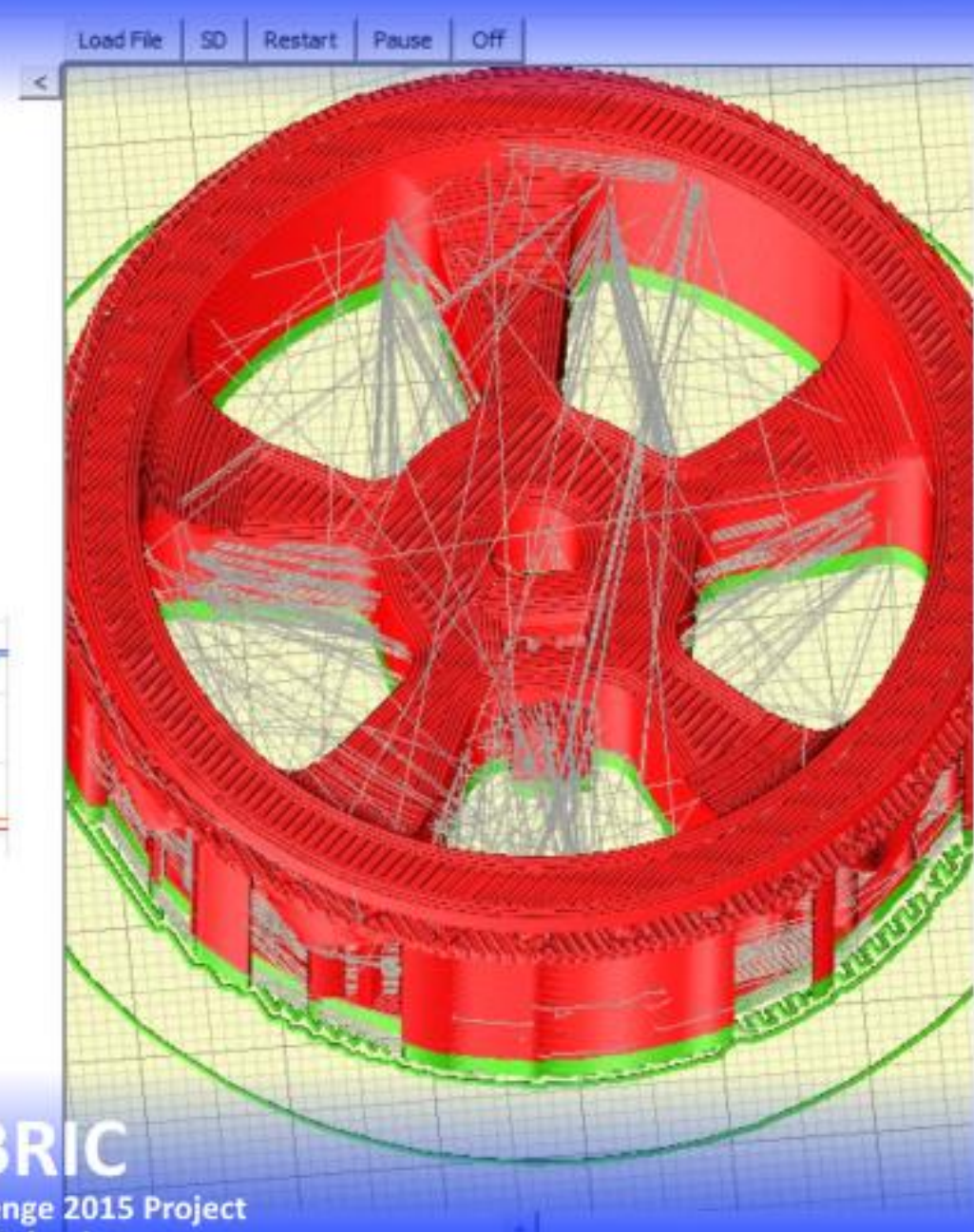
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File Tools Advanced Settings Help
 Port COM3 @ 250000 Disconnect Reset
 Motors off XY: 3000 mm/min Z: 100



Heat: Off 230 (abs) Set 250
 Bed: Off 110.0 Set 250
 Extrude Reverse
 Length: 10.0 mm @ Speed: 50.0 mm/min
 Print speed: 100 % Set 100
 T: 226.7 / 230.0 B: 103.5 / 110.0

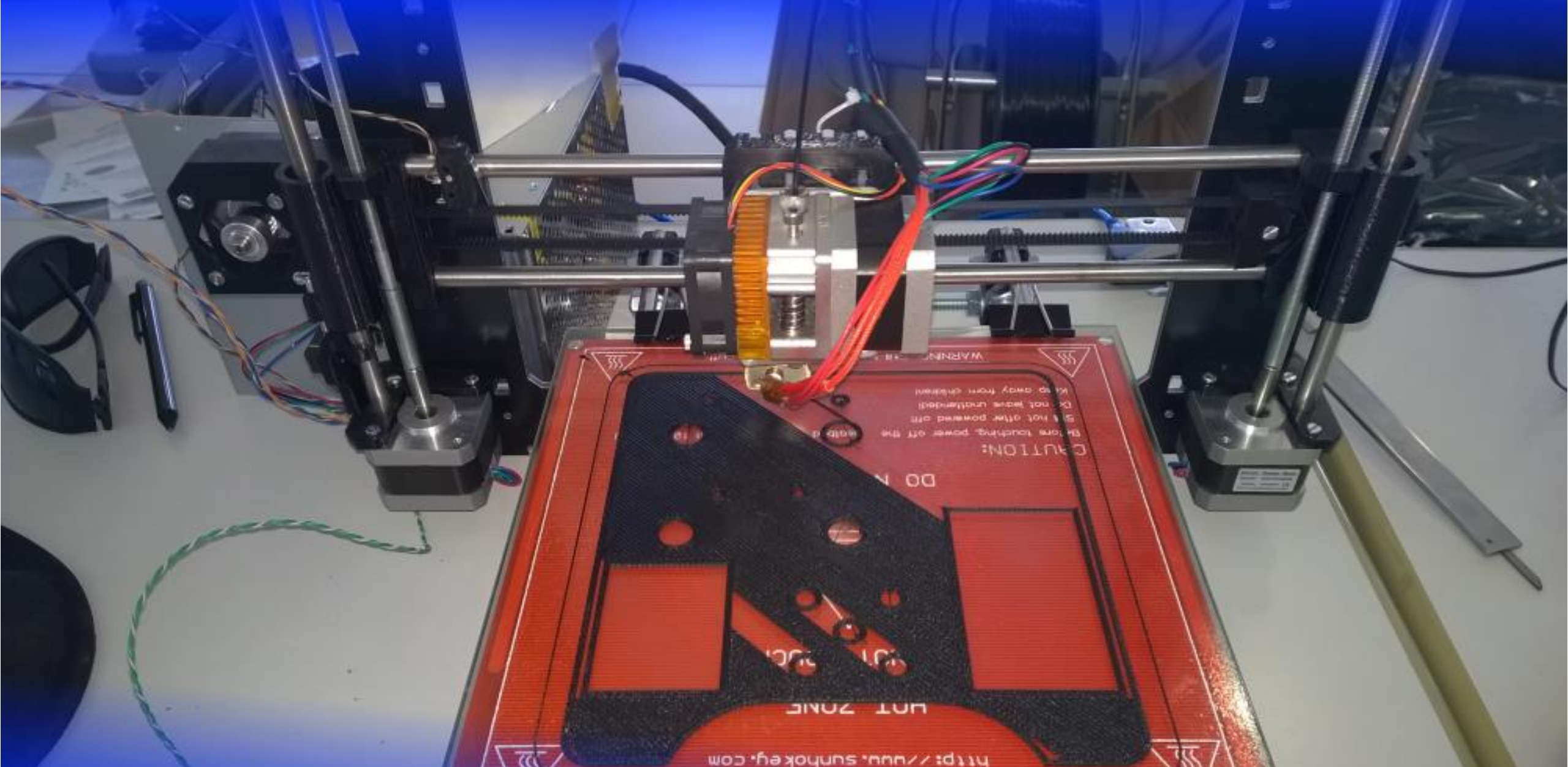


```

start
Printer is now online.
echo:Marlin: 1.0.0 RC2
echo: Last Updated: 2015-04-09 | Author: Dimitar M...
echo: Free Memory: 5680 PlannerBufferBytes: 1232
echo:Using Default settings:
Loading file: C:\Users\Dimitar\Desktop\Prusa\ROSCO
1\Back_Wheel-65mm-r2_repaired.gcode
Setting bed temperature to 110.000000 degrees Celsi...
Loaded C:\Users\Dimitar\Desktop\Prusa\ROSCO
1\Back_Wheel-65mm-r2_repaired.gcode, 176171 lines
11569.69mm of filament used in this print
The print goes:
- from 59.24 mm to 140.76 mm in X and is 81.51 mm w...
- from 59.27 mm to 140.73 mm in Y and is 81.45 mm de...
- from 0.00 mm to 21.20 mm in Z and is 21.20 mm high
Estimated duration: 84 layers, 1:45:23
Print started at: 10:46:47
Setting bed temperature to 110.000000 degrees Celsi...
Setting print speed factor to 50%.
Setting bed temperature to 110.000000 degrees Celsi...
Setting print speed factor to 25%.
Setting bed temperature to 60.000000 degrees Celsi...
Setting bed temperature to 60.000000 degrees Celsi...
Setting print speed factor to 50%.
Setting print speed factor to 100%.
Print paused at: 11:08:08
; Motors off
SENDING:M84
; Extruder off
SENDING:M104 S0
; Heatbed off
SENDING:M140 S0
; Fan off
SENDING:M107
; Power supply off
SENDING:M81
Setting bed temperature to 110.000000 degrees Celsi...
Setting bed temperature to 110.000000 degrees Celsi...
Print started at: 11:09:49
Setting bed temperature to 110.000000 degrees Celsi...
Setting bed temperature to 110.000000 degrees Celsi...
  
```



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PCB Heated MK2a
<http://uuu.sunhokej.com>

HOT ZONE

DO NOT TOUCH

CAUTION:

Before touching, power off the heater.
It is hot after powered off.
Do not leave unattended!
Keep away from children!

WARNING

```
ProgramStarted()
FEZ_Cerb__Rover.Program

// Use Debug.Print to show messages in Visual Studio's "Output" window during debugging.
Debug.Print("Program Started");

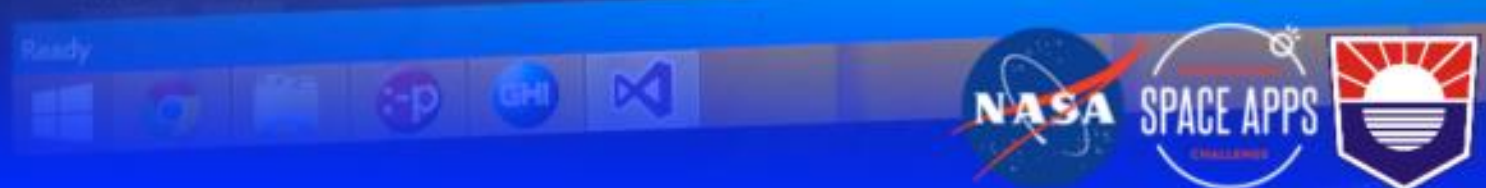
// Pinouts
GT.SocketInterfaces.DigitalOutput P3 = extender.CreateDigitalOutput(GT.Socket.Pin.Three, false);
GT.SocketInterfaces.DigitalOutput P4 = extender.CreateDigitalOutput(GT.Socket.Pin.Four, false);
GT.SocketInterfaces.DigitalOutput P5 = extender.CreateDigitalOutput(GT.Socket.Pin.Five, false);
GT.SocketInterfaces.DigitalOutput P6 = extender.CreateDigitalOutput(GT.Socket.Pin.Six, false);

bool[] Arr1 = new bool[] {true, false, true, false, false, false, true, true, false, true, false, true, false, false, fa
bool[] Arr2 = new bool[] { true, false, false, true, false, false, false, false, true, true, true, false, false, true, f

for (int i = 0; i < Arr1.Length; i++)
{
    P4.Write(Arr1[i]);
    P5.Write(Arr2[i]);
    Thread.Sleep(3000);
}
}
}
```

Solution Explorer

- Solution FEZ_Cerb - Rover
- FEZ_Cerb - Rover
 - Properties
 - References
 - Resources
 - Program.cs
 - Program.gadgets
 - Program.gadg
 - Program.gene
 - Resources.resx



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Thank you page!

TO BE CONTINUED ...