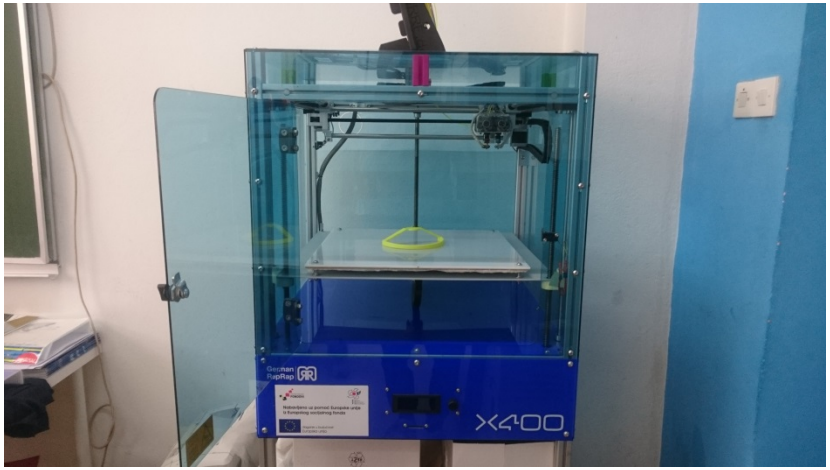
2015-1-ES01-KA202-015925

# 6th Transnational Meeting
# Krško (Slovenija) 5-6 October 2017

Croatian Drone Team, Tehnička škola Sisak




Presented by Patrik Miškulin and Stefan Zečević

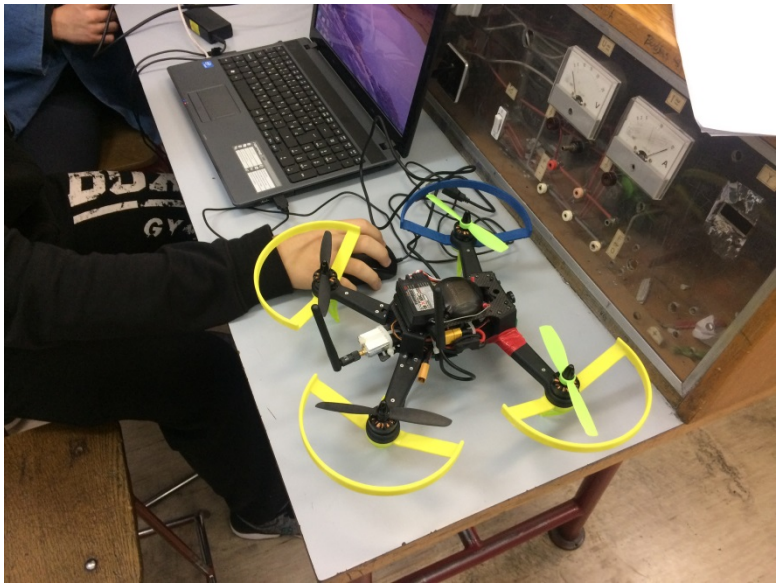
# Drone Team Workshop

At the begining of the school year (2017/2018) we took over the drone team school project.

It was our assigment to study, inform and educate our students to help them to find interest into drone menagment and flying.

# Student workshops

We had 2 presentations and 1 workshop exhibiting the drone and Drone Team, both got a lot of attention.

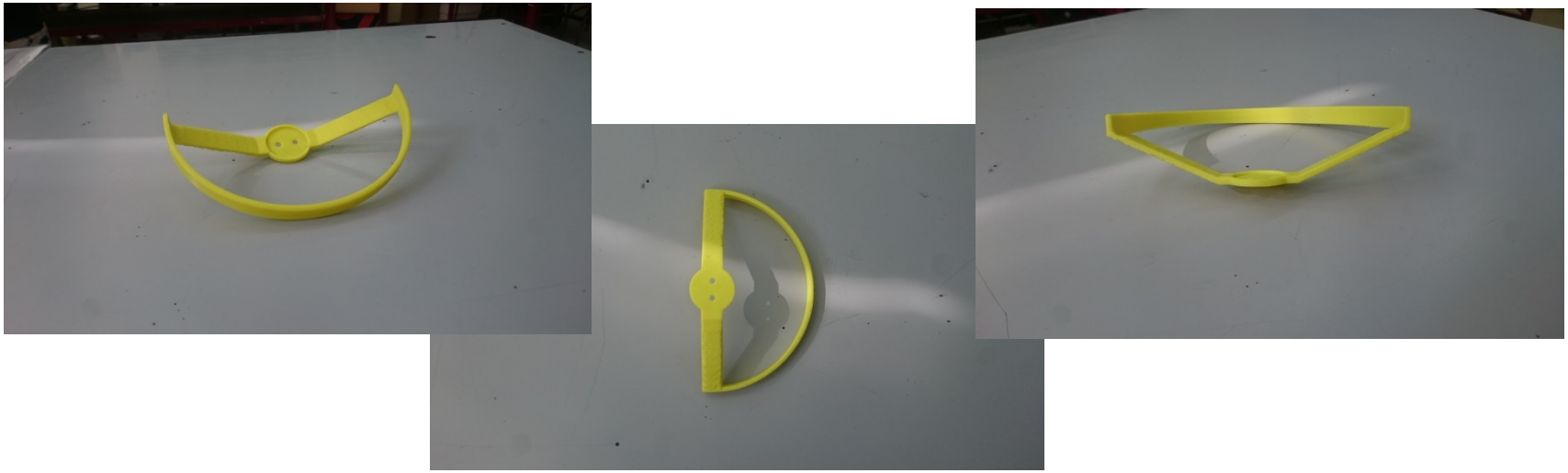


# Implementation

We took the knowledge we had and projected a 3D printed safety covers for the propelers. We 3D printed 4 safety cover.

# An idea can start a project!

We learned about 3D printing from our teachers and wanted to implement it into our drone project. We had to do some reserch and some time to practice but in the end we did it!



# Our 3D printers

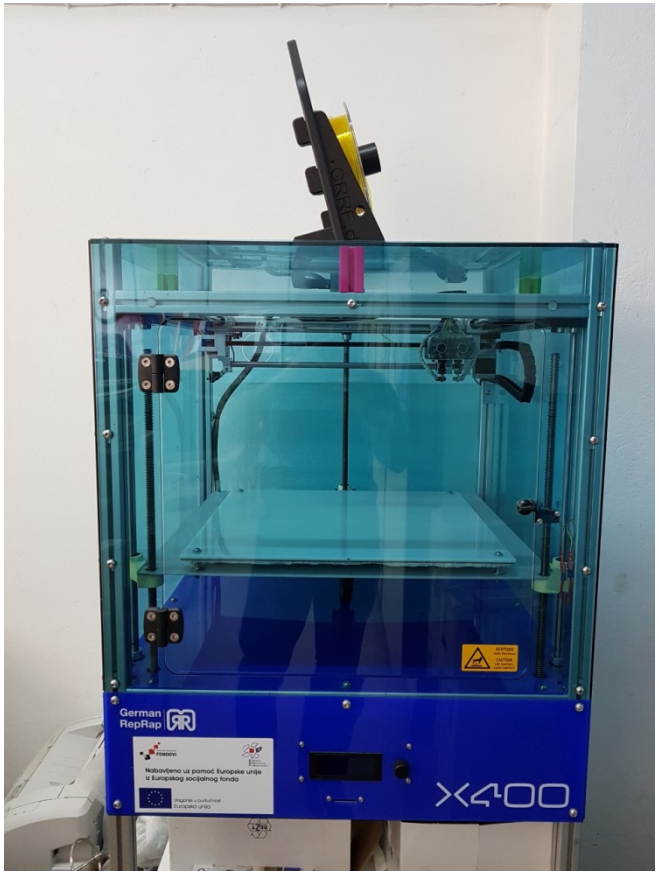
- We have 3 3D printers at our school!
- -German RepRap X400
- -XYZ Da Vinci
- -Zortrax M3000

# German RepRap X400

***Technical specifications:***

- Floor space (L/W/H) about 650 x 650 x 700 mm, without base cabinet
- Weight about 35kg, without base cabinet
- Print area (X/Y/Z) up to 390mm x 400mm x 330mm, about 56 liter
- Layer thickness min. 0.1mm, <0.1mm experimental
- Reproduction accuracy +/- 0.01mm
- Tolerance +/- 0.01mm, Shrinkage factor depending on the material
- Speed max. 15mm3 / second, depending on the printing and the material
- Extruder DD-Extruder 1.75mm / 3mm Material, Nozzle: optionally 0.3 0.4 0.5 0.75 1.0
- Max. operating temperature 280°C
- Operating voltage 110/240V AC, ~ 600 Watt (incl. heated bed)
- Material ABS,PLA,PS,PP,PE,HDPE,LDPE,Wood, inter alia 1.75mm/3mm

# German RepRap X400

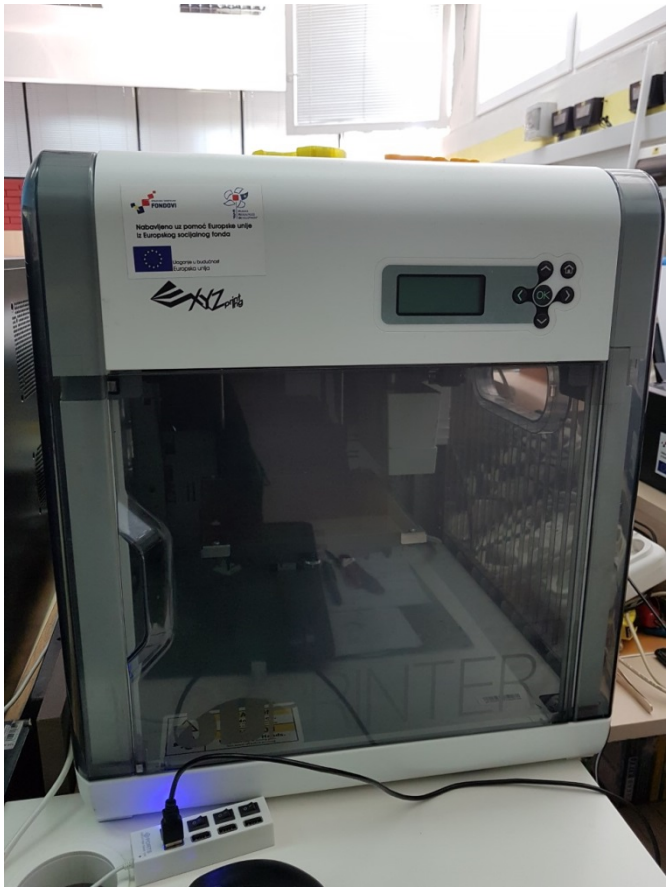


# XYZ Da Vinci 1.0

***Technical specifications:***

Technology: FFF (Fused Filament Fabrication)
Maximum Build Volume (WxHxD): 7.8 x 7.8 x 7.8 inches (20 x 20 x 20cm)
Printing Mode: Fine (100 microns), Standard (200 microns), Speed (300 microns), Ultra Fast (400 microns)
Print Head: Single Nozzle
Nozzle Diameter: 0.4mm
Print Speed: 150mm/sec
Filament Diameter: 1.75mm
Print Material: ABS
File Type: .STL & XYZ Format
Panel Type: 4 x16 LCM
Language: English & Japanese
Connectivity: USB 2.0 Wire

# XYZ Da Vinci 1.0



# Zortrax M3000

***Technical specifications:***

***Temperature***

Extruder maximum temparature: 380° C (716° F)
Heated platform: Yes
Platform maximum temparature: 110° C (230° F)
Ambient operation temparature: 20°-35° C (68°-95° F)

***Printing***

Technology: LPD
Build volume: 300x300x300 mm
Resolution: 140-300 microns
Material container: Spool
Wall thickness Optimal: 800 microns
Resolution of single printable point: 400 microns
Material diameter: 1.75 mm (0.069 in)
Nozzle diameter: 0.4 mm (0.015 in)
Minimum single positioning: 1.5 microns
Positioning precision (X/Y):1.5 microns
Z-axis single step:1.25 microns

# Zortrax M3000

***3D Printer***

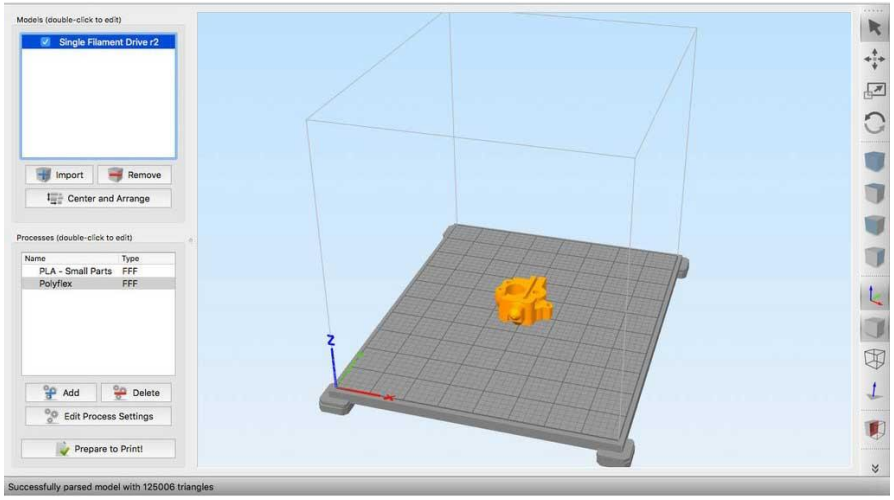
Support: Mechanically removed - printed from the same material as the model
Extruder: Single
Connectivity: SD Card
Dedicated materials: Z-ESD, Z-HIPS, Z-GLASS, Z-PETG

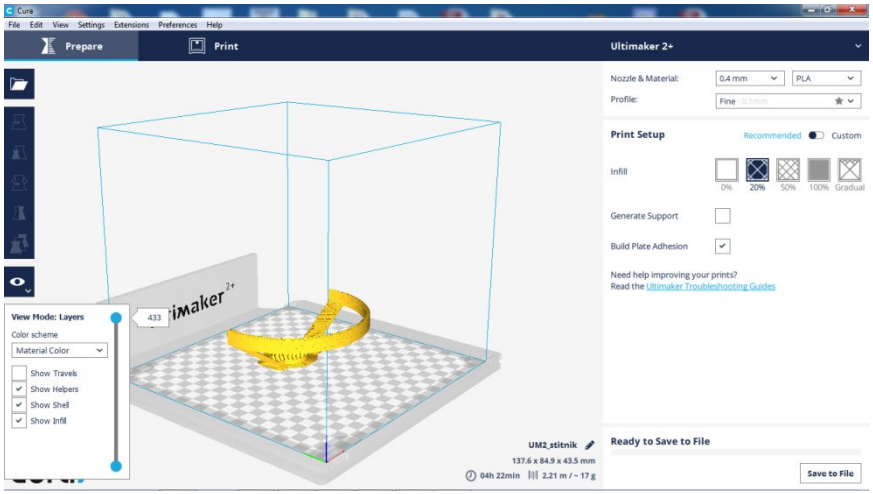
# Zortrax M3000

# Software

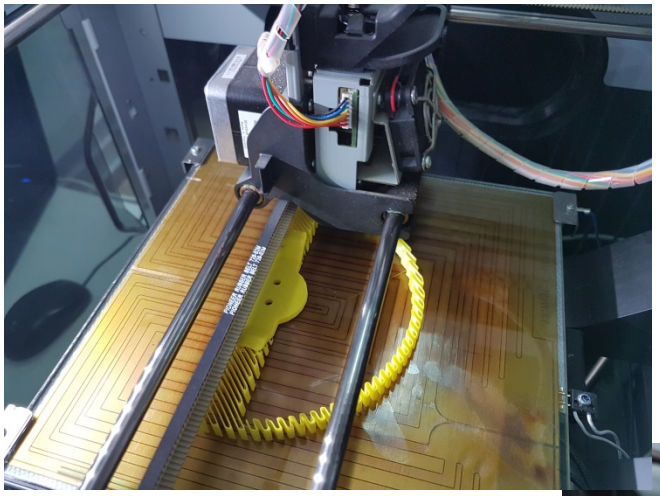
We used:

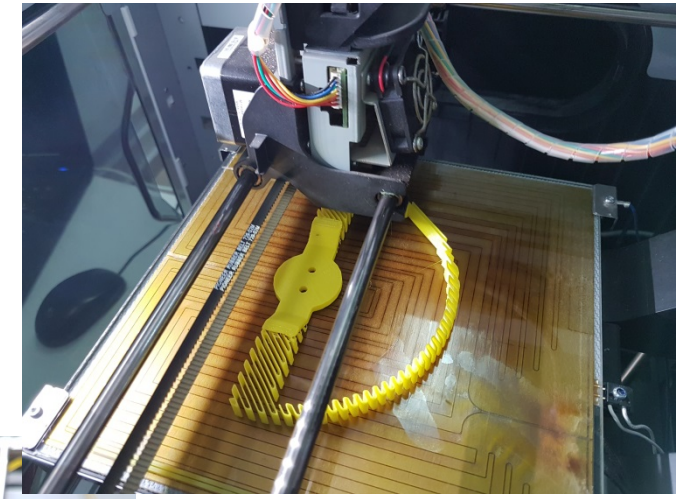
XYZware, Z-suite, Simplify3D

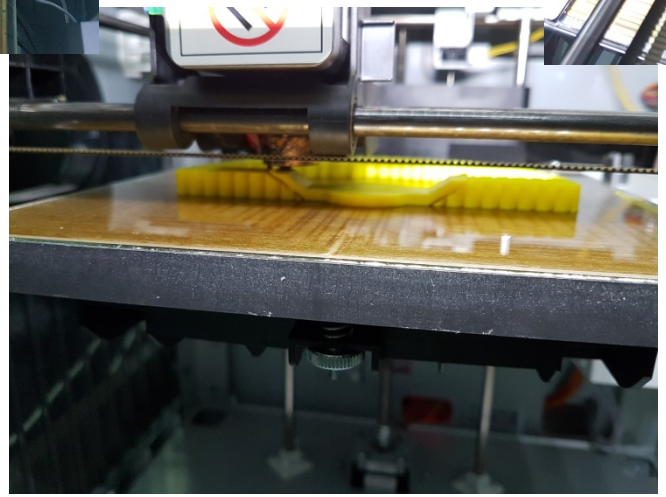


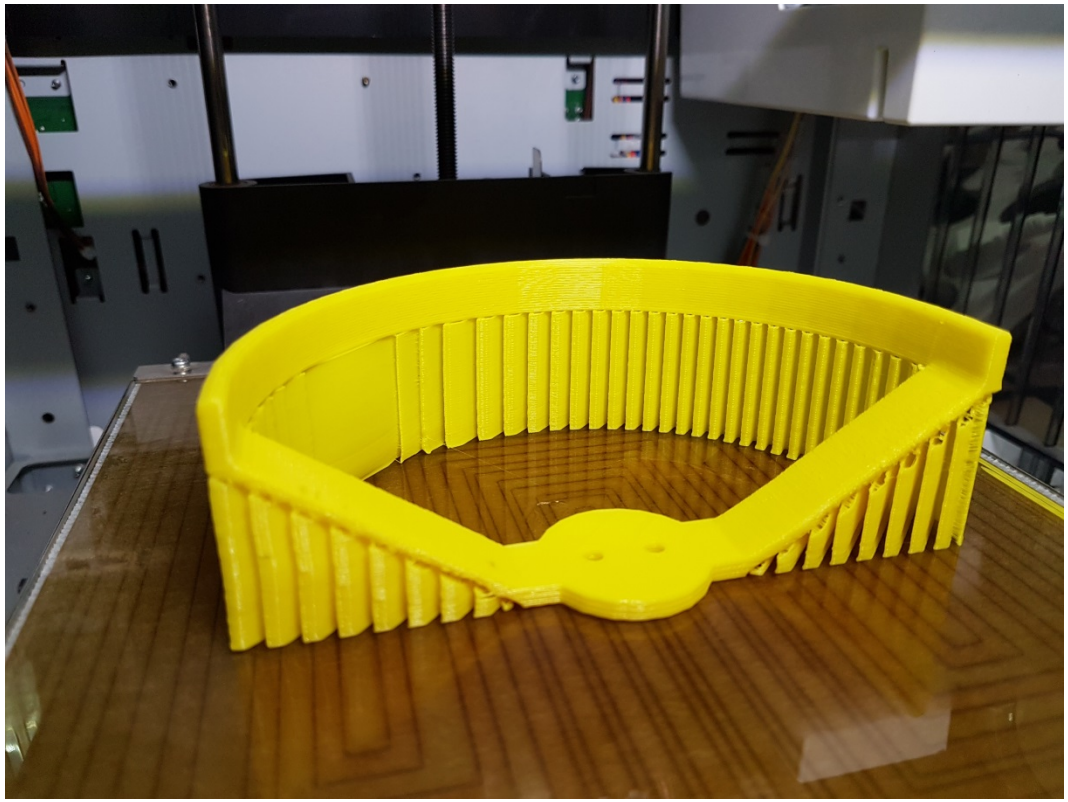
# Process of 3d printing



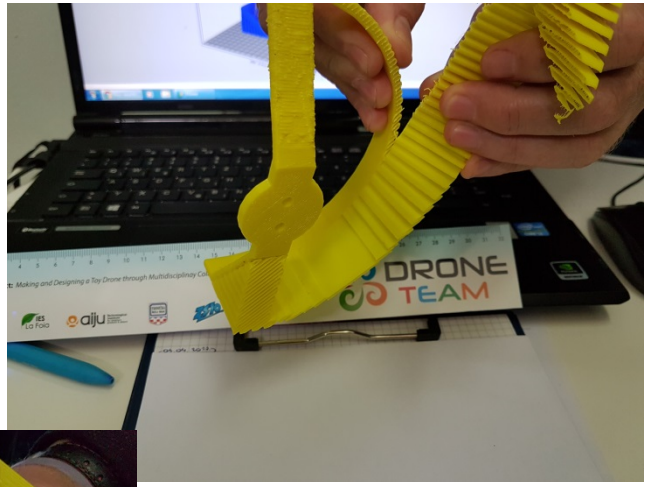


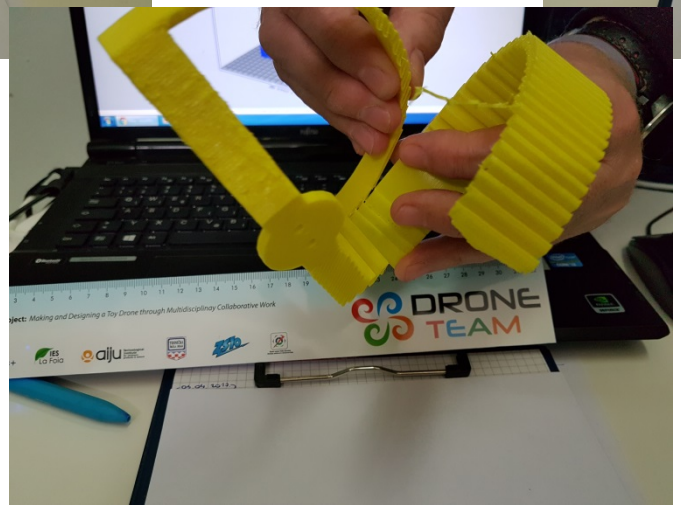


# Process of 3d printing



# Process of making 3d printing

# Finished 3d printing

# Future plans

- Helping others to find interest in drone menagment
- Finding ways to develope our drone

# Thank you for your attention!