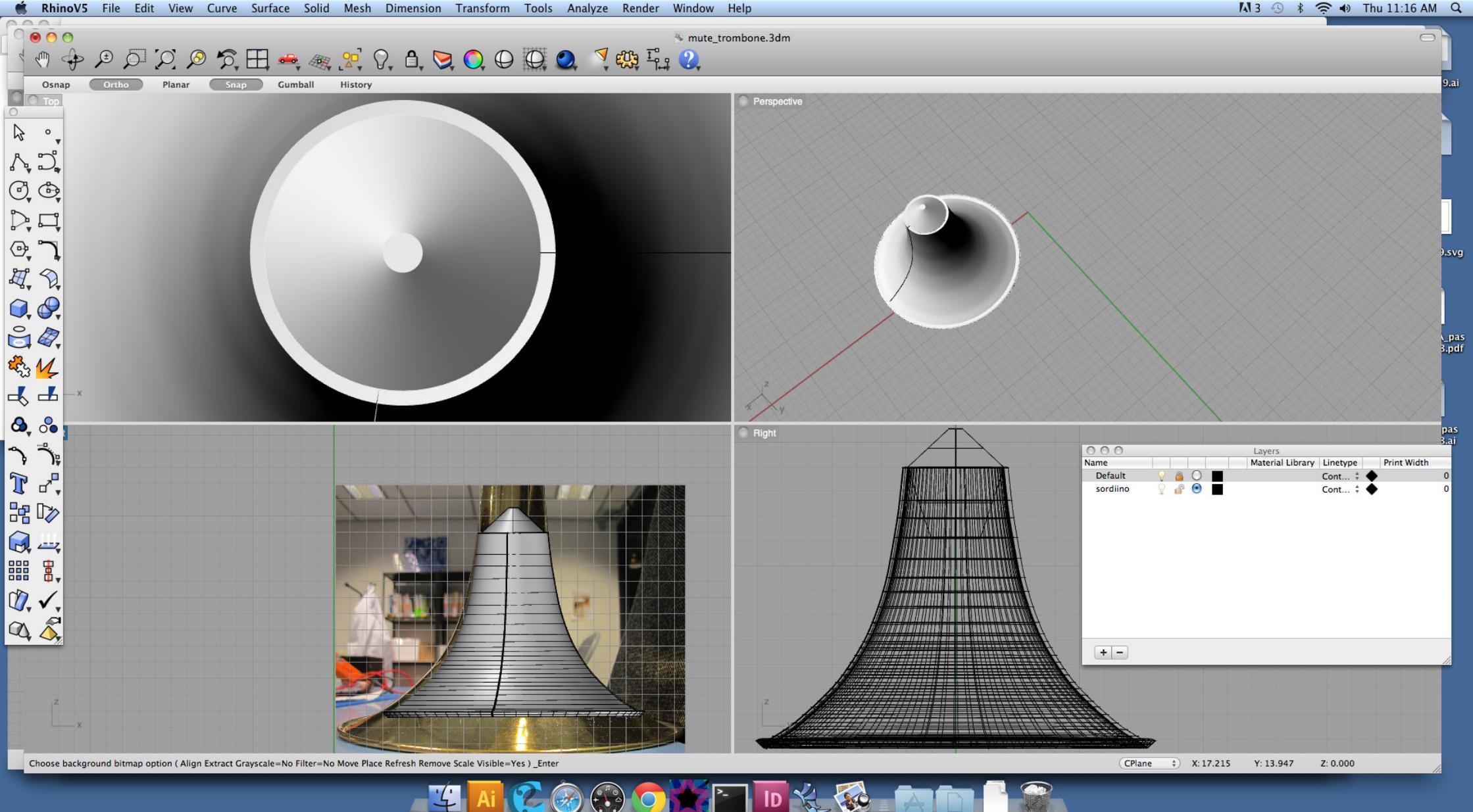


**Mute for brass**  
*digital fabrication project@aalto fablab*

Olli Romppanen 2013

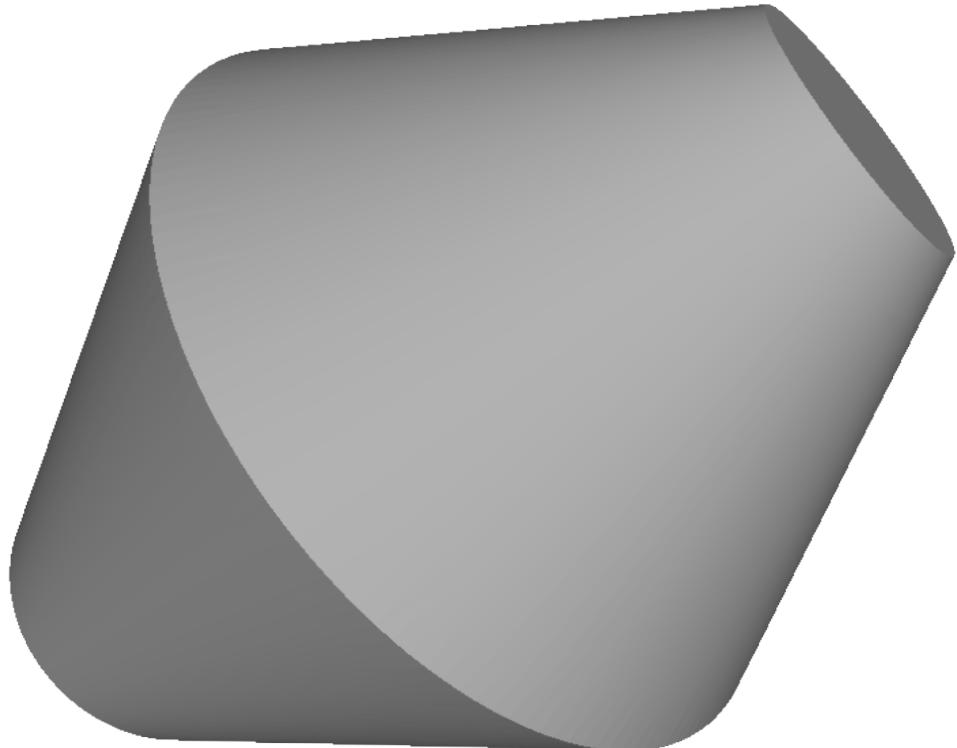
*There are just about 12 types of mutes for brass instruments, so I had to make my own.*

*Typically mutes are made of wood, fiber, metal or plastic. Yamaha is producing a mute-amplifier called SilentBrass.*



1) Creating a 3d model of the bell of my two instruments in Rhino  
Model created by drawing curves on the image of the bell, then revolving the curve and setting offset (thickness of the instrument)

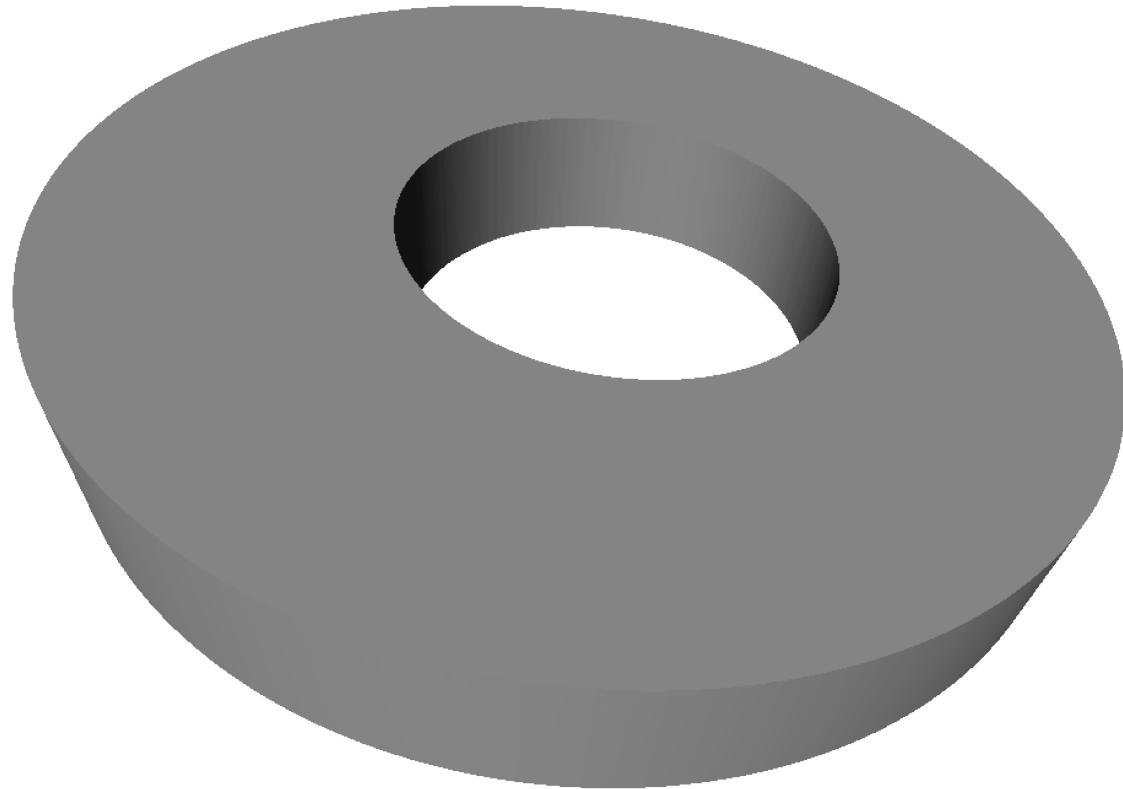
2) Drawing a mute inside the model of the bell.



3) Trying to manufacture the mute file with Ultimaker.  
Realizing that the printer quality is not sufficient and the printer  
can't currently handle objects that are deserved size of the mute



- 4) Scaling the mute down to be used as a part of new mute design made of styro-foam
- 5) Printing two different “mini-mutes” with different structure for use with the “big mute”

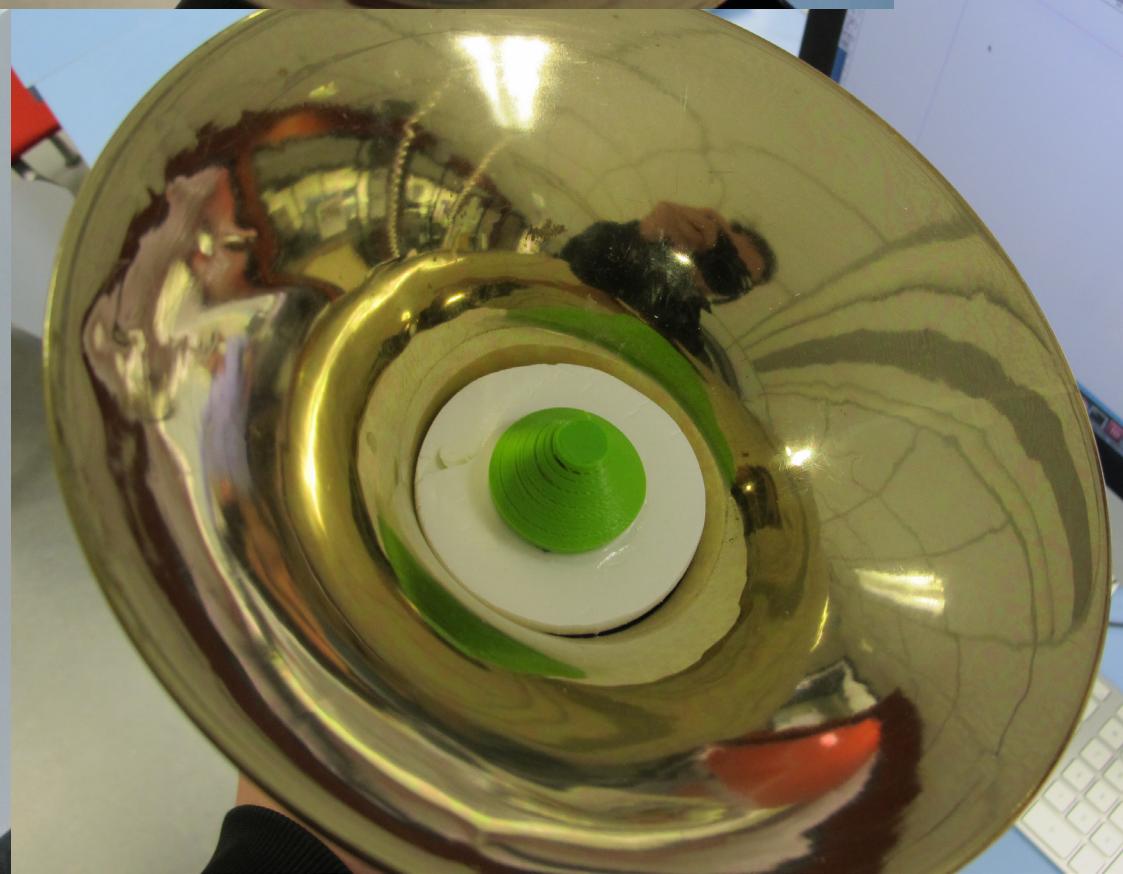
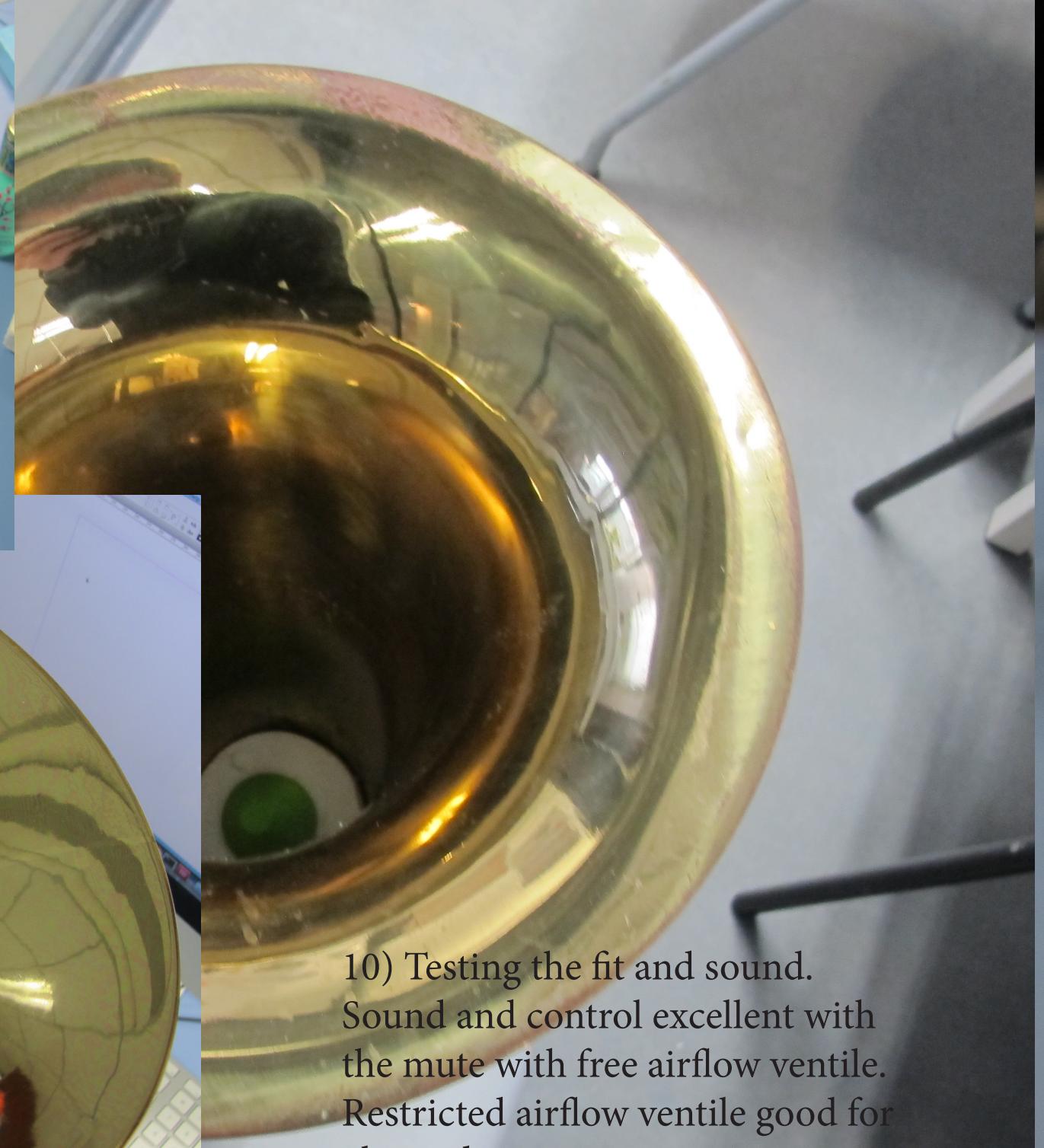
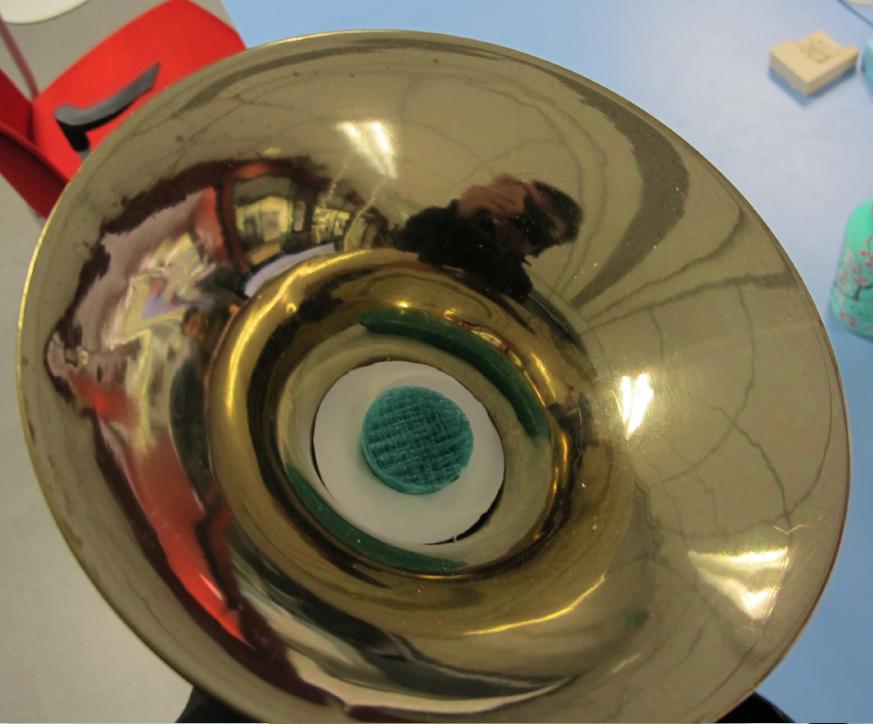


6) Modeling styrofoam ring with a hole  
for “mini-mutes”

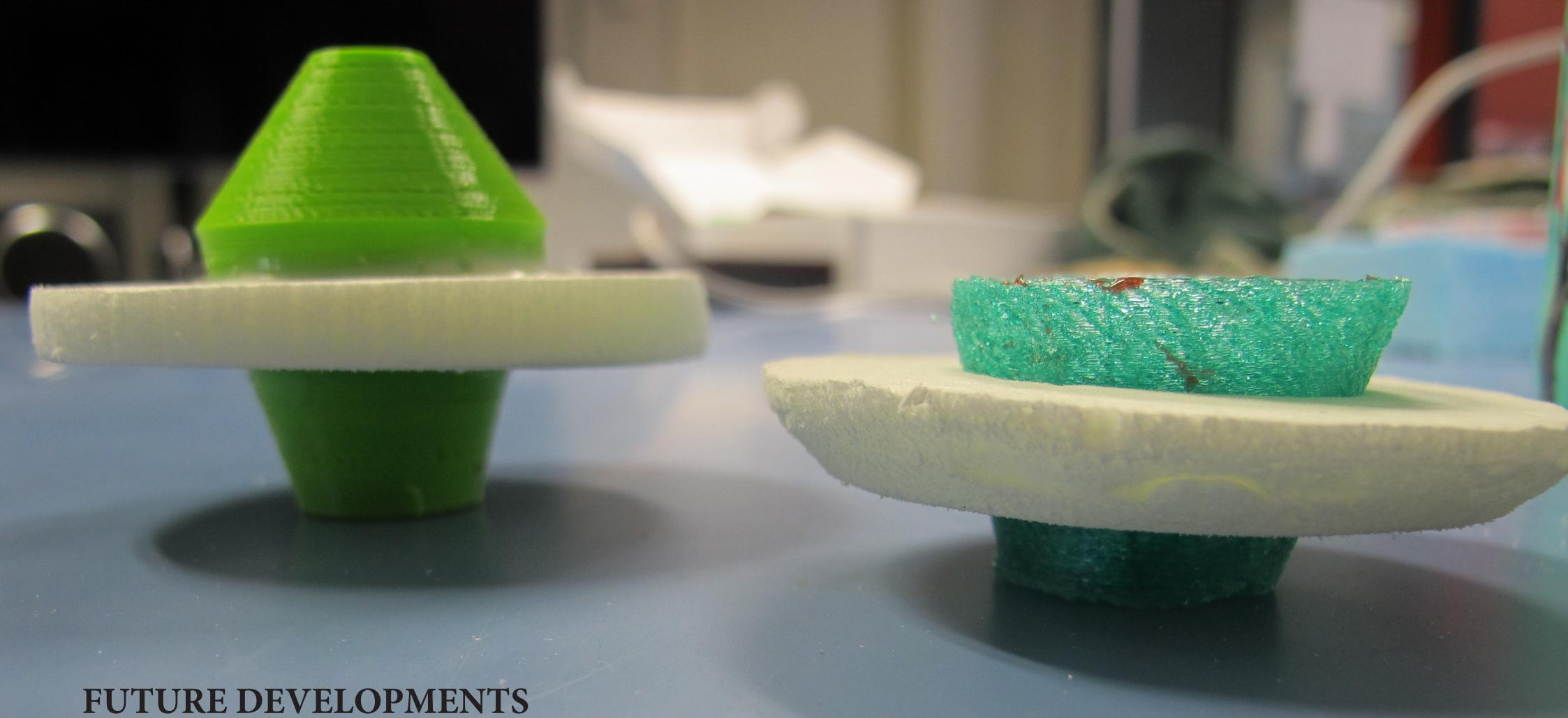


7) Milling the styrofoam ring

8) Combining styrofoam ring and mutes  
made of PLA



10) Testing the fit and sound.  
Sound and control excellent with  
the mute with free airflow ventile.  
Restricted airflow ventile good for  
glissandos.



## FUTURE DEVELOPMENTS

*Someone with a decent printer can already print out the mute optimized for Bach Model 42 tenor trombone or baritone horn in B.*

*Silicone strips to protect the brass need to be added, though.*

*If the mute is printed as “a thin walled cup”, the mute could host a micro-controller for additional features like sound and light effects.*