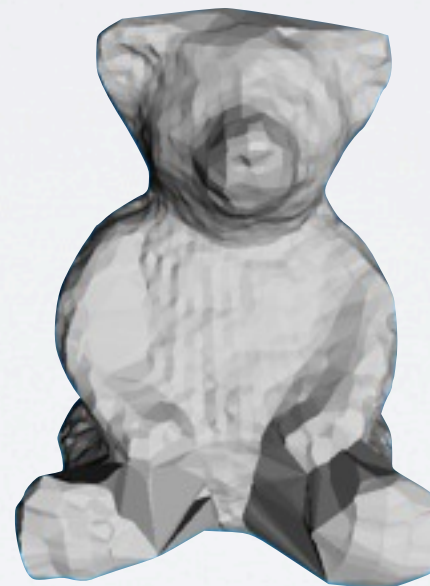


FabScan

Affordable 3D Laser Scanning of Physical Objects

(Bachelor's Thesis Final Colloquium)



Francis Engelmann

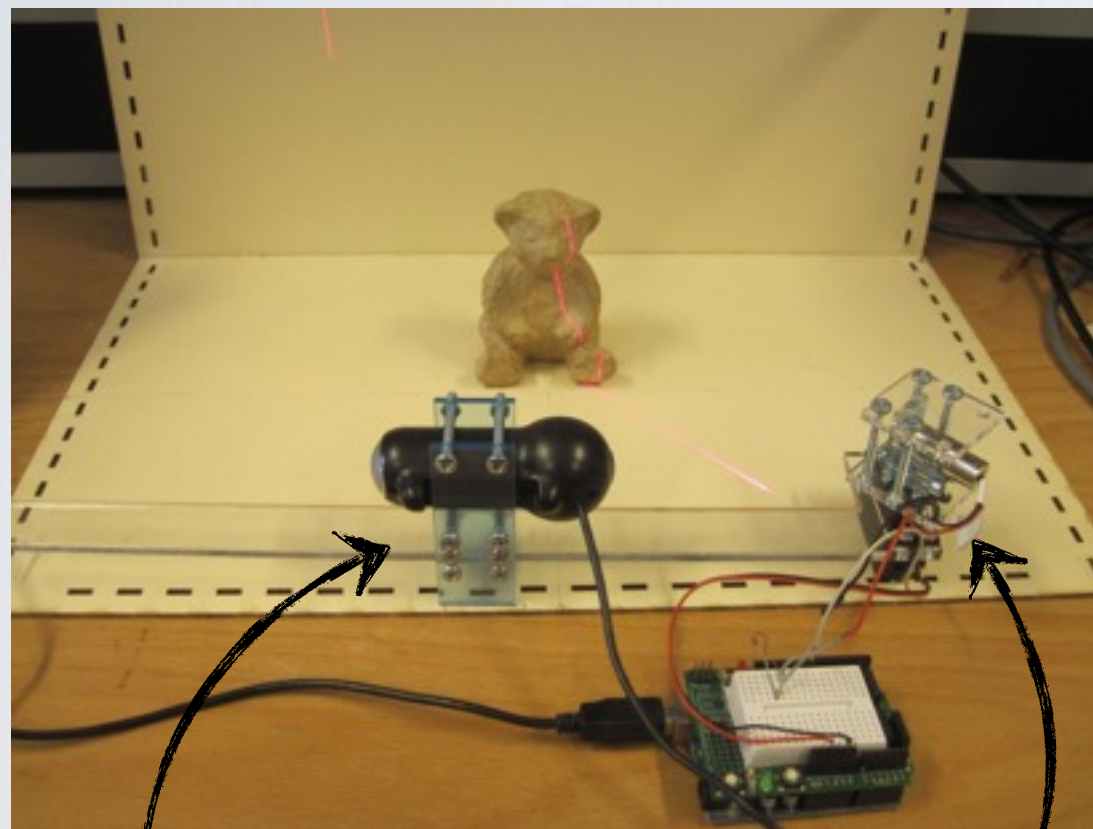
Advisor: Dipl.-Inform. René Bohne

media
computing
group



FIRST PROTOTYPE

Hardware



Scanning Results



WebCam

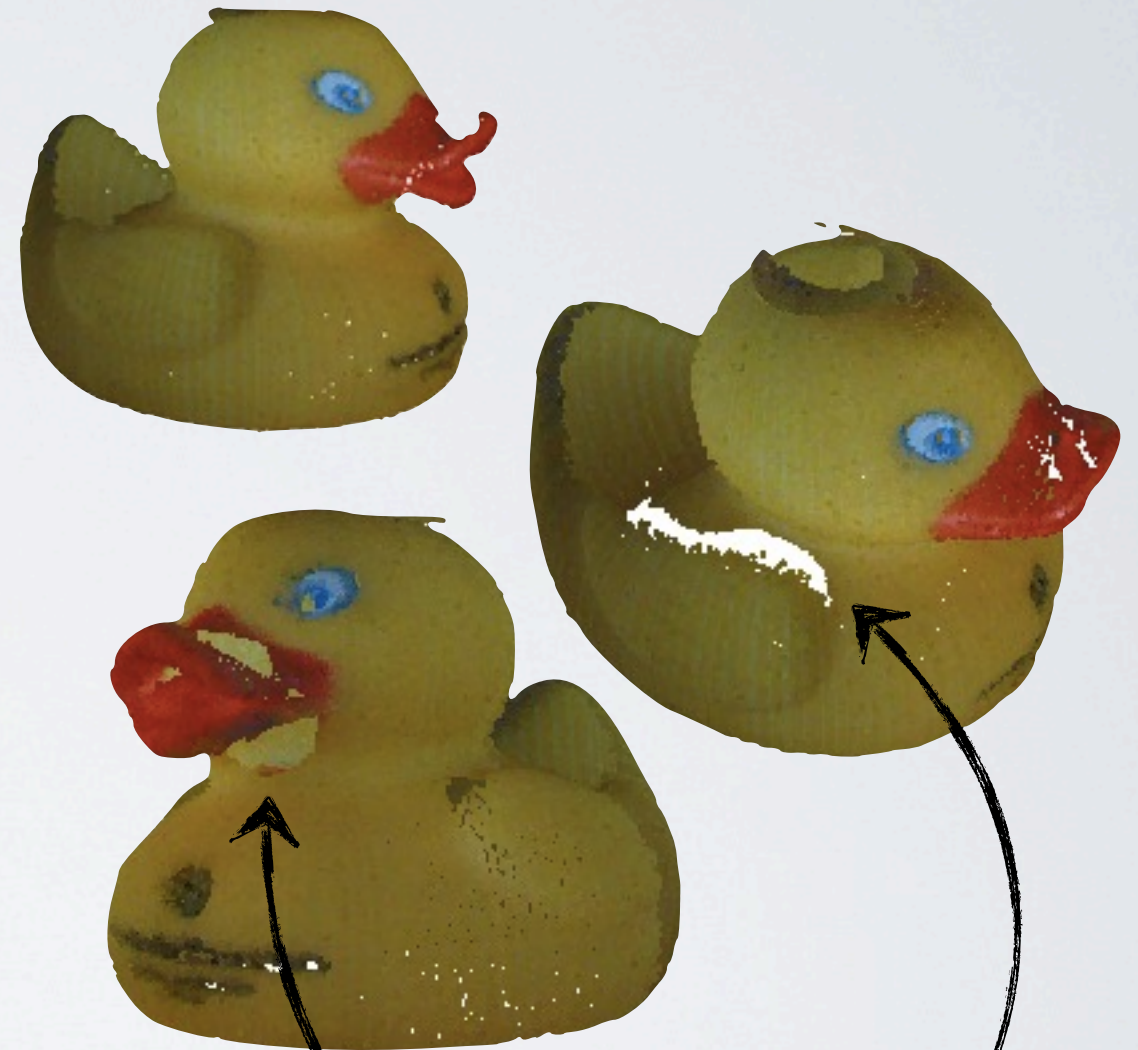
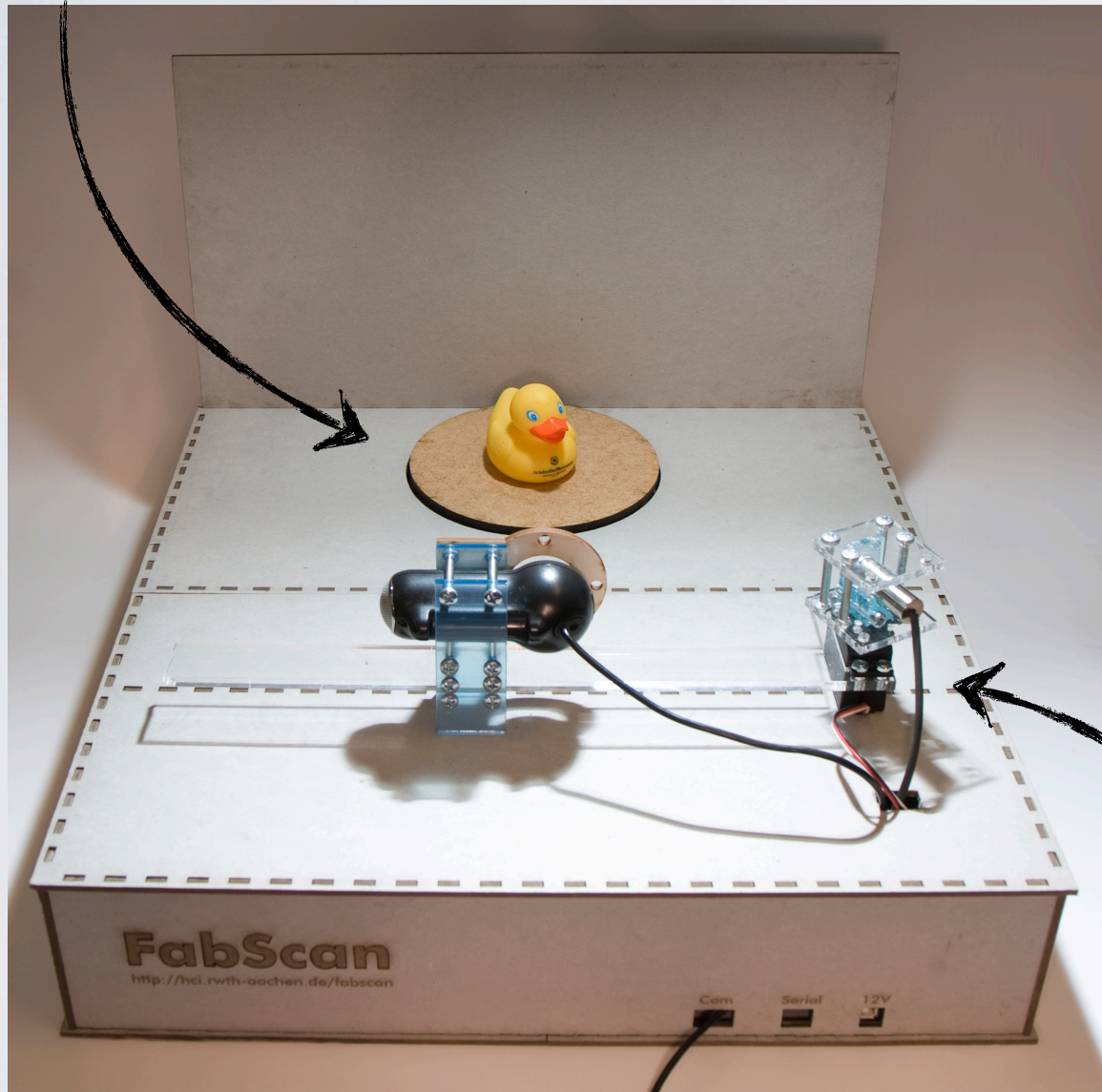
Arduino

Line Laser
on Servo

SECOND PROTOTYPE

Added Turntable → 360° Scanning

TurnTable



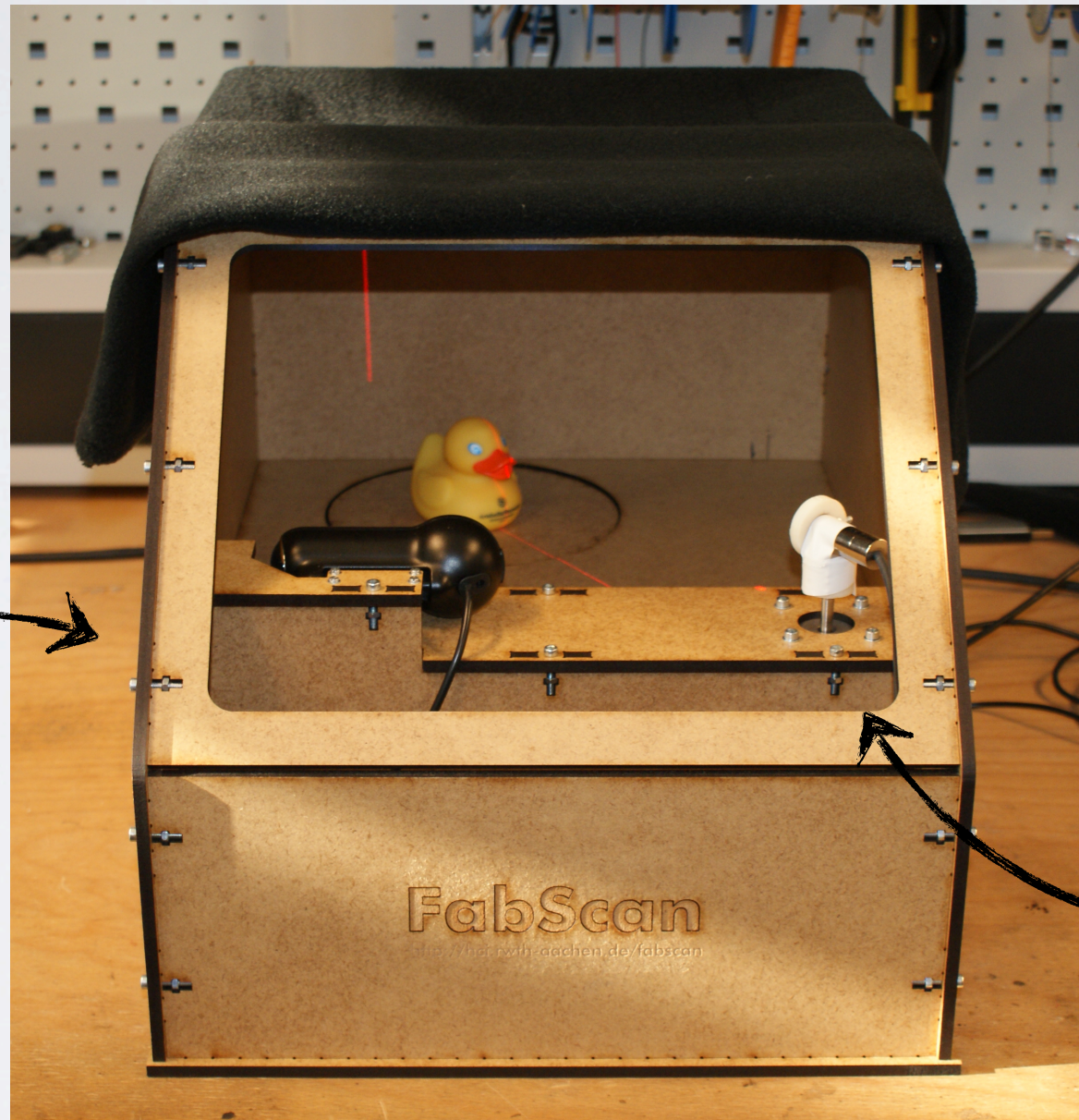
Still Laser

Laser Shadow Problem

Box

FINAL PROTOTYPE

Turntable + Rotating Laser

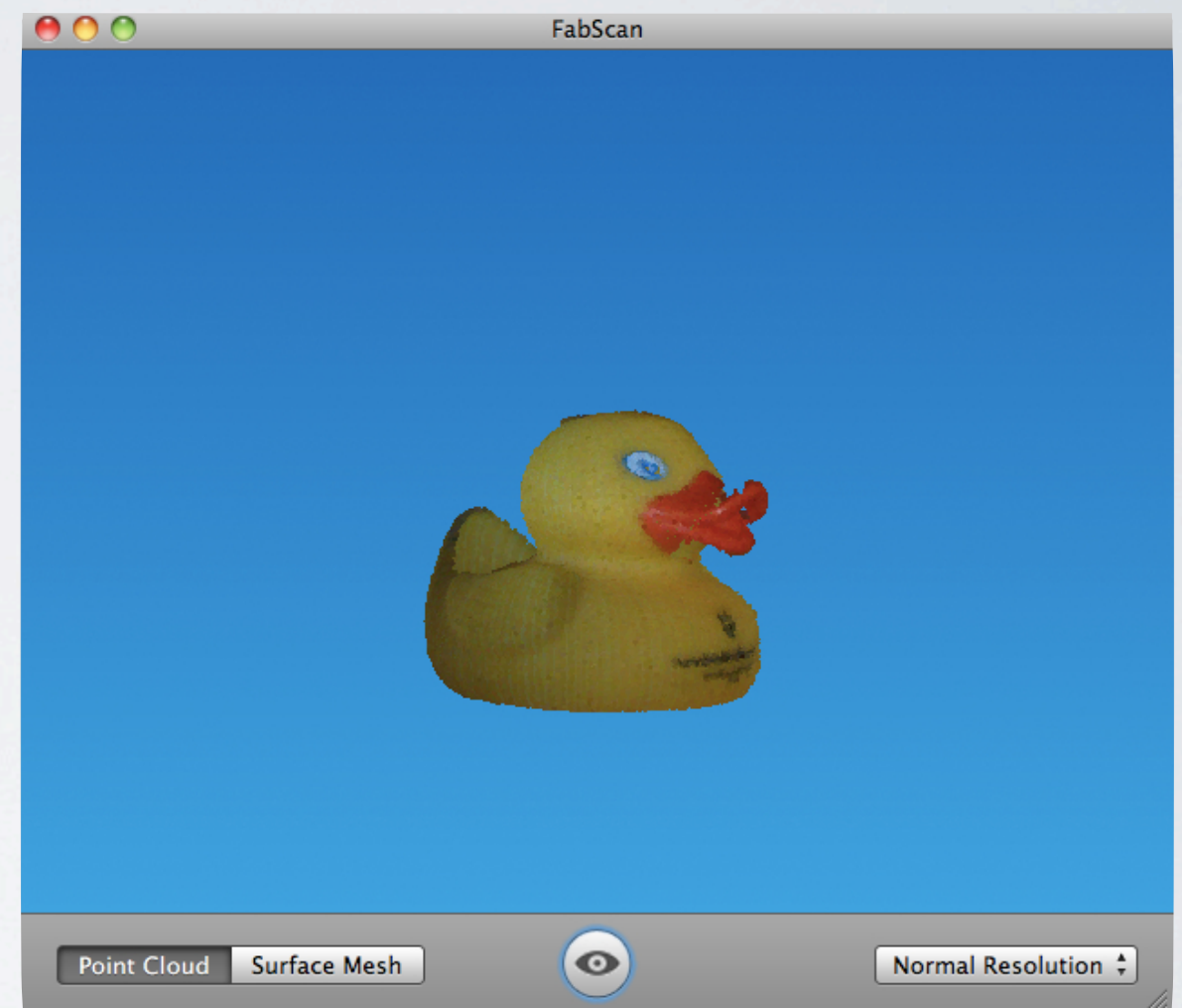


Stable box
with Cover
+ Lights

Rotating
Laser

Demo

GUI SOFTWARE PROTOTYPE

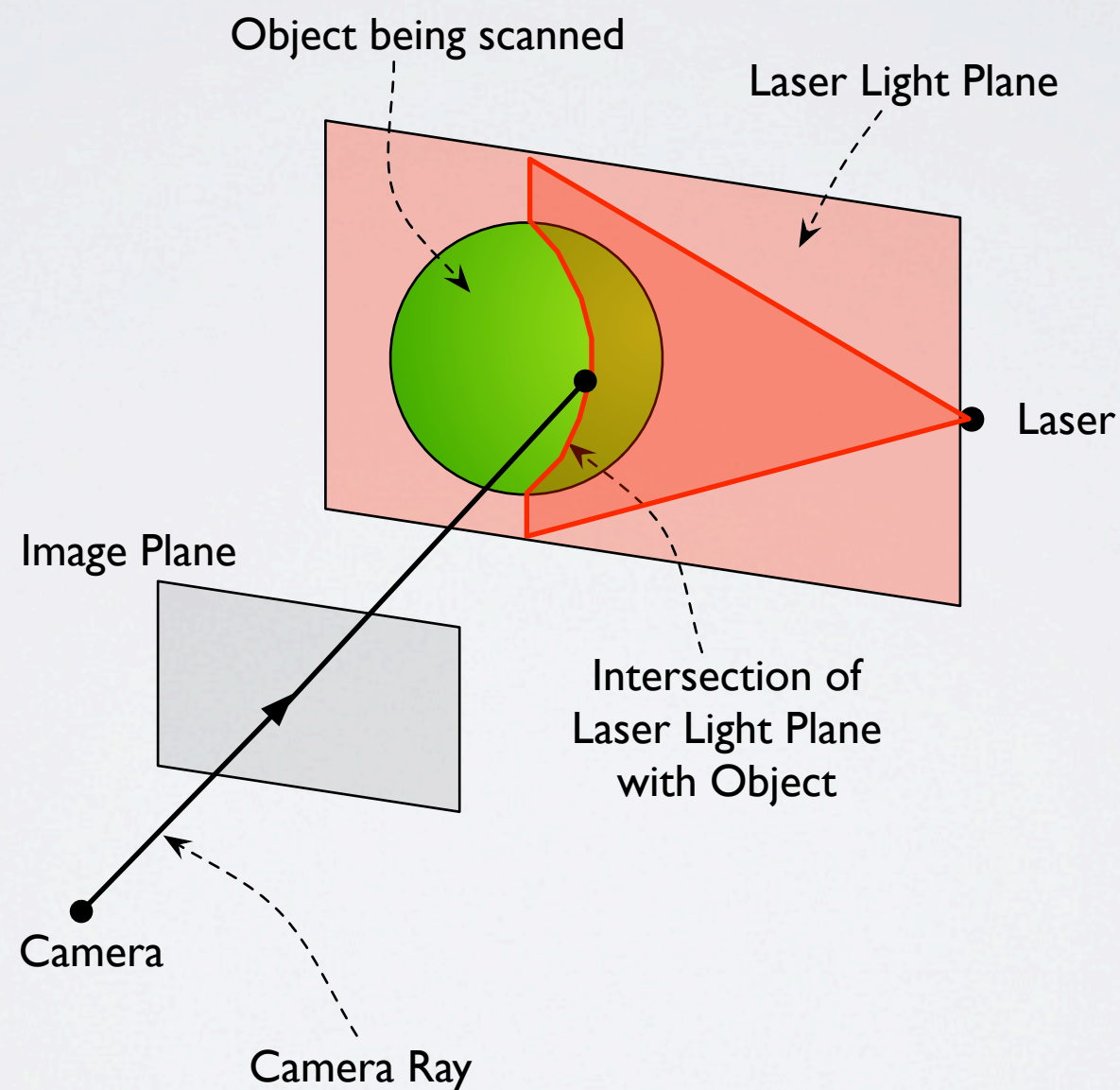


Choose
view

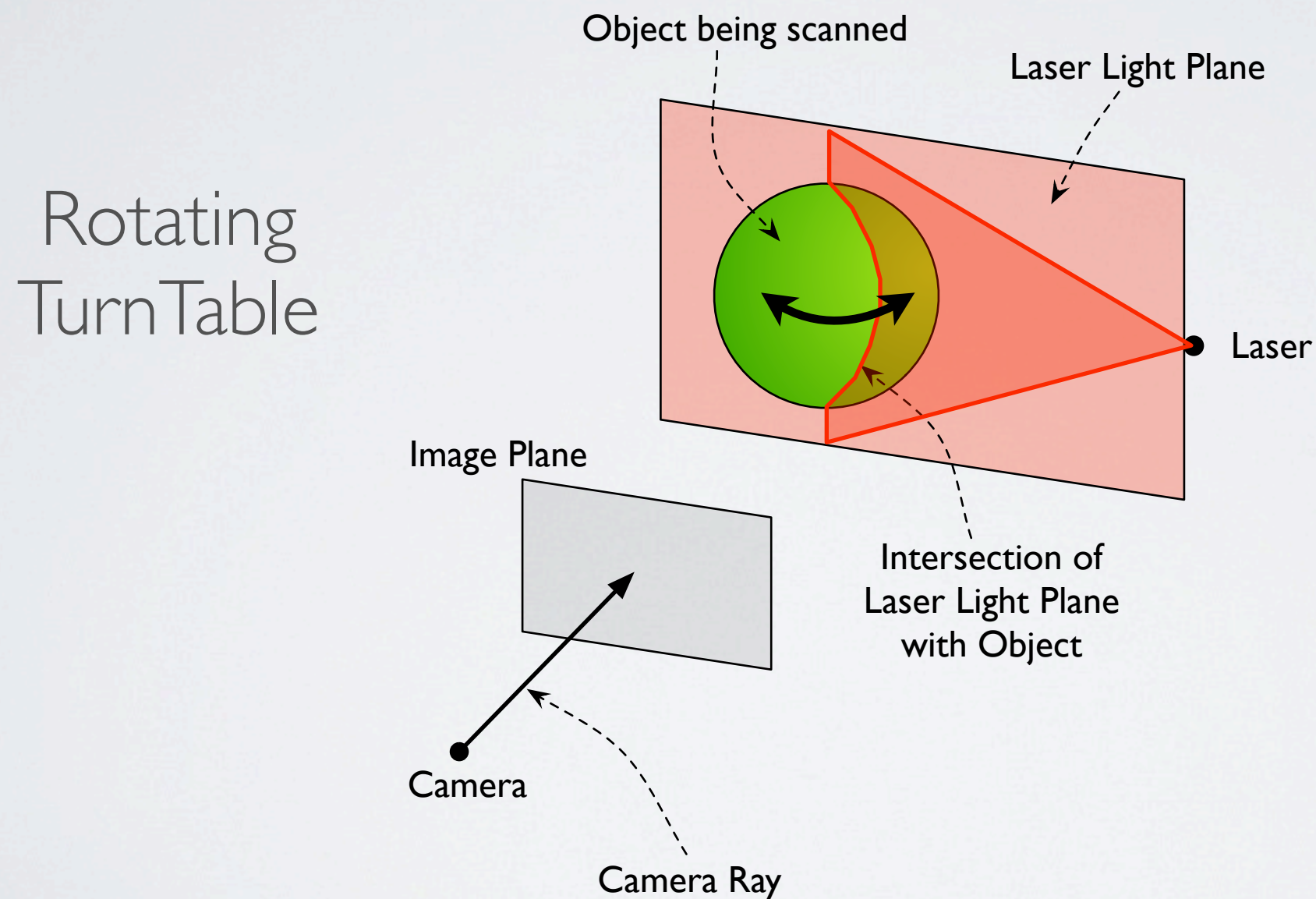
Start Scan

Set
Resolution

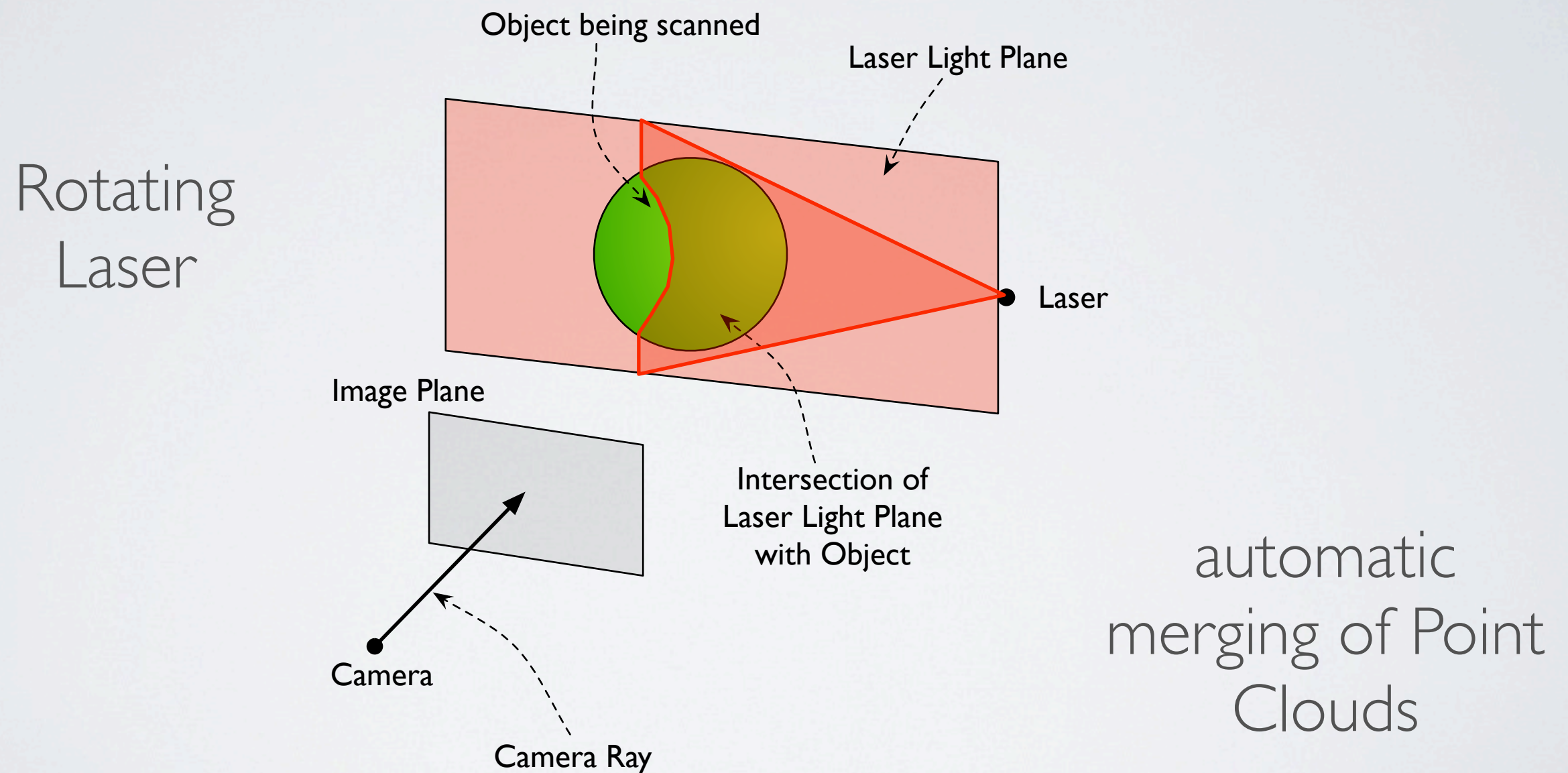
BASICS OF TRIANGULATION



BASICS OF TRIANGULATION

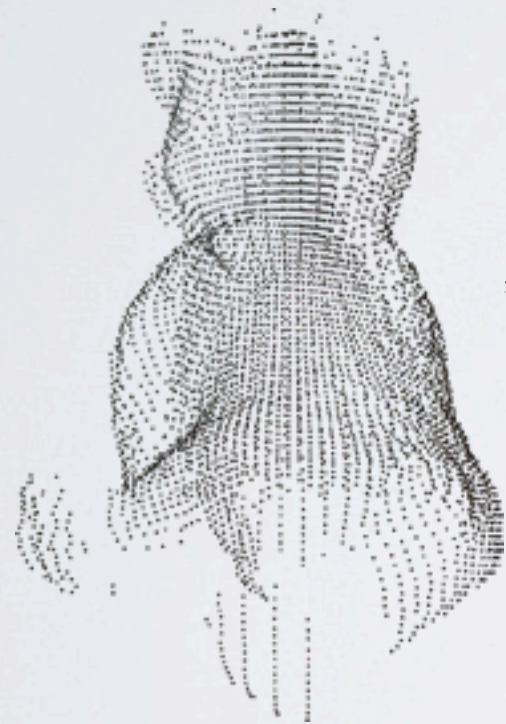


BASICS OF TRIANGULATION



AUTOMATIC POST PROCESSING

PointCloud



Powercrust



SurfaceMesh



export



Printable .stl



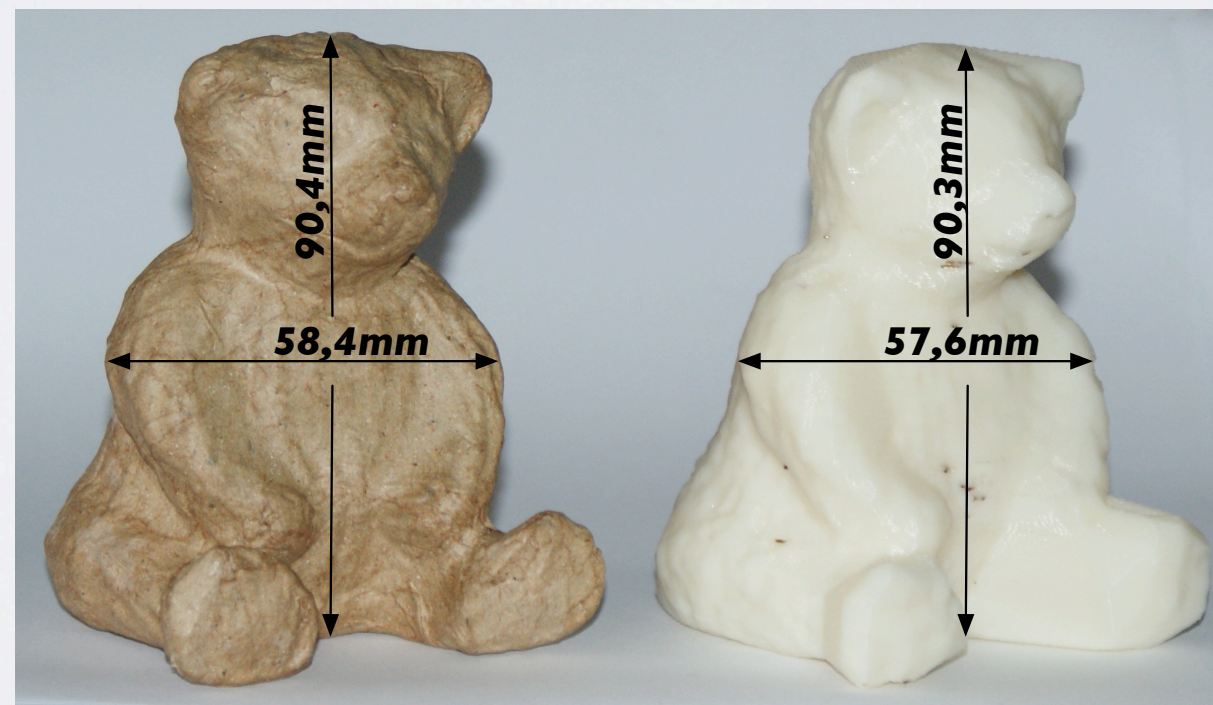
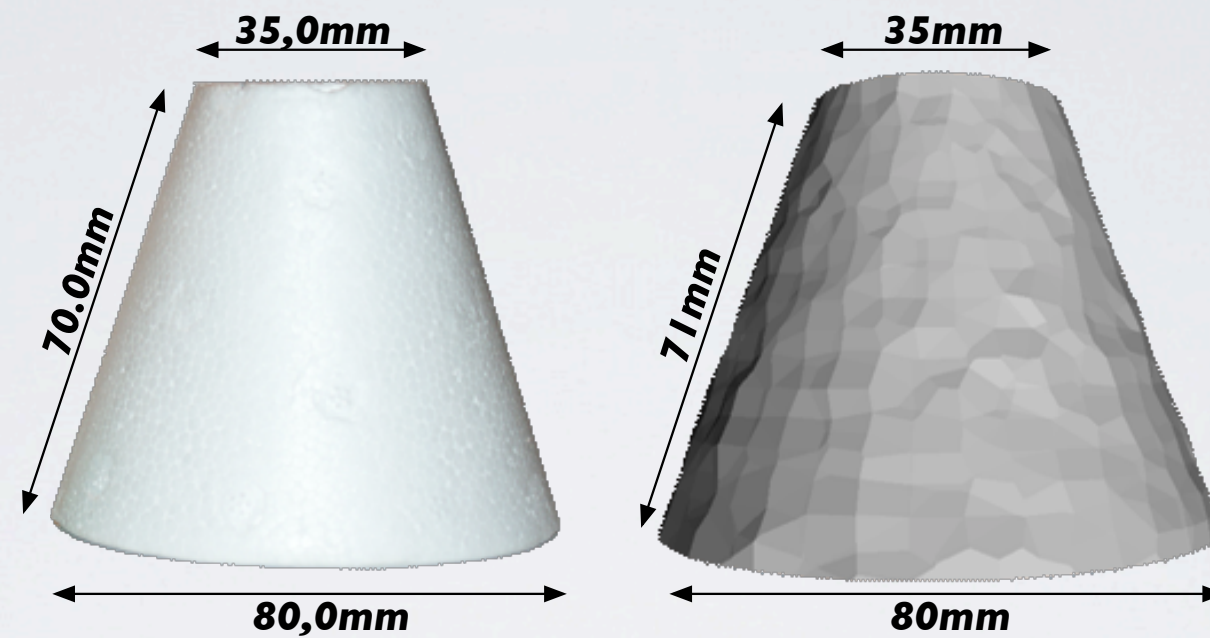
EVALUATION

Requirements met?

- Affordable, Easy-to-rebuild ✓
- Software is portable, Easy-to-use ✓
- Ready-to-Print Models ✓
- 360° Scans ✓

EVALUATION

Precision of the Scanner



SUMMARY

<http://hci.rwth-aachen.de/fabscan>

