

BEACON

WAVE

UNLOCK LTTA4

**Modules designed for the
hearing and visually impaired users**



- **IO4: Tactile Art** - Paintings transformed for the visually impaired:
Pilot module transforming 2D paintings into 3D printed moldings
- **IO5: Vibrating Music** - Pilot Module for transforming mechanical music into vibrating and visual effects to the benefit of people with hearing difficulties

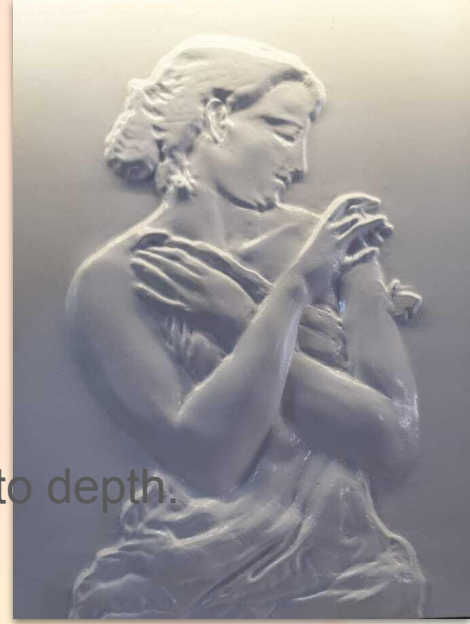
IO4 - 3D Paintings

We take a painting and convert it to a bas-relief.

Akin to **Lithophany**

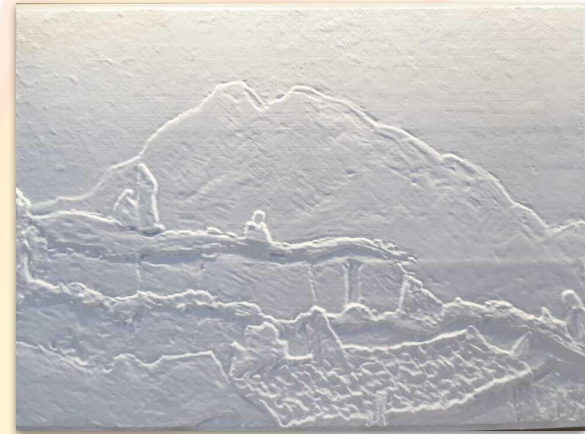
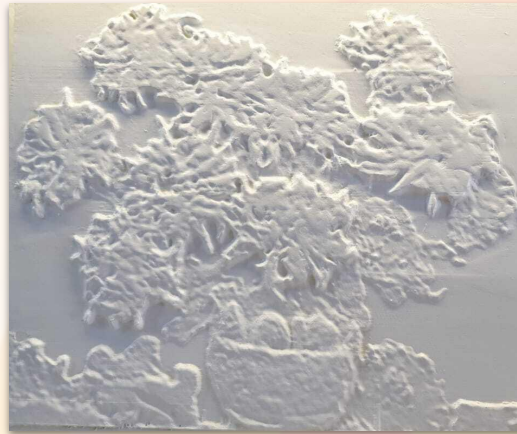
The process of taking brightness information and translating it into depth.

The resulting 3D file is then sent to a 3D printer



The process is partly automated,

Partly manual



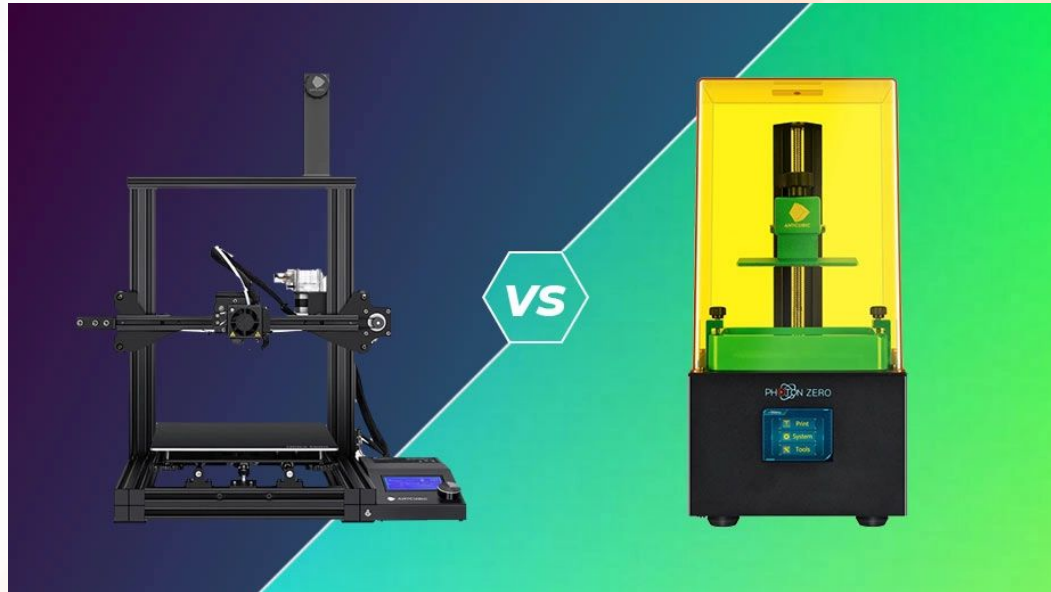
Types of 3D Printing

FDM

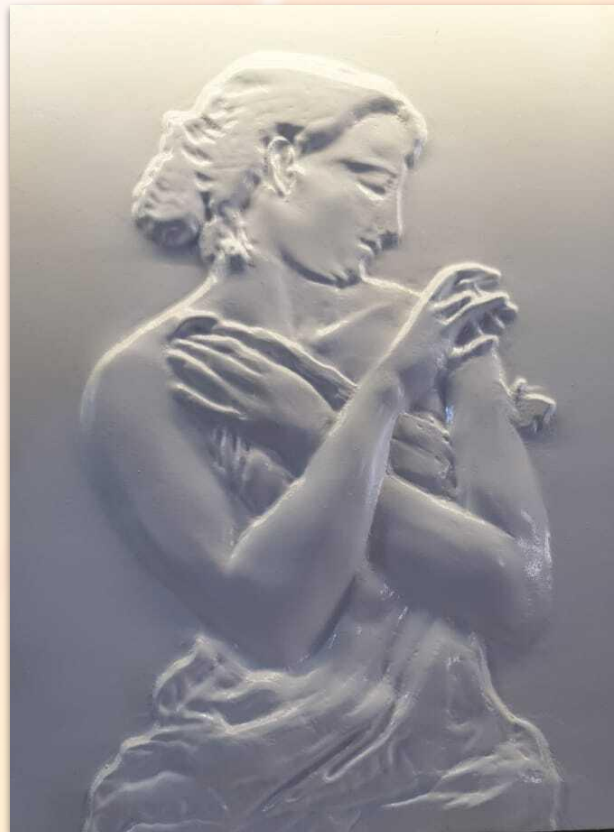
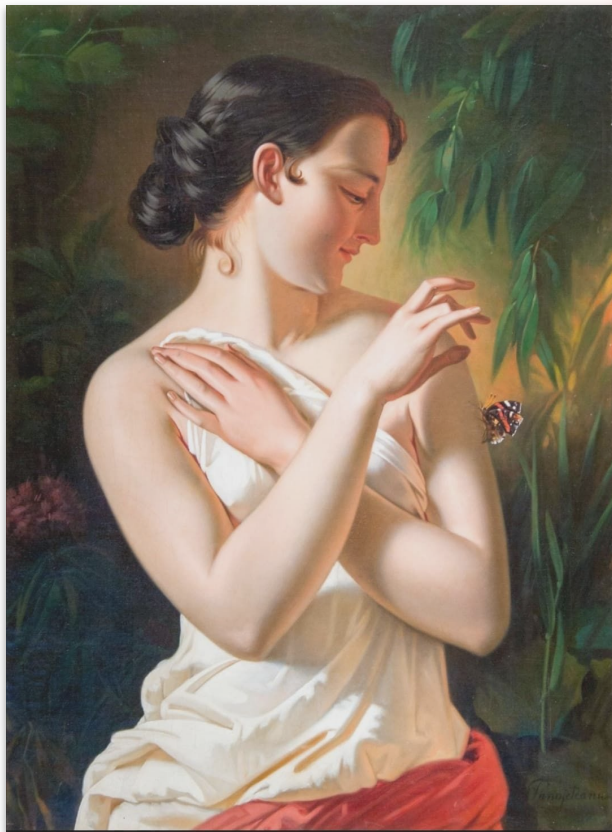
Filament - Accessible

SLA

Resine - Best definition



The girl with the butterfly - Gh. Panaiteanu Bardasare



Landscape from Balchik - Nicolae Tonitza



Chrysanthemums - Ștefan Luchian



IO5 - Translating music into vibrations

There are known cases where the hearing impaired are able to dance to the beat of lively music.

Only the base can be felt though... Humans can hear sounds from 20Hz to 20KHz.

We can sense through our skin vibrations from 5Hz to 1000Hz.

We're working to bring the sound register to our tactile register.

IO5 - Translating music into vibrations

Initial concept.

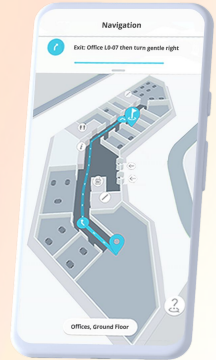
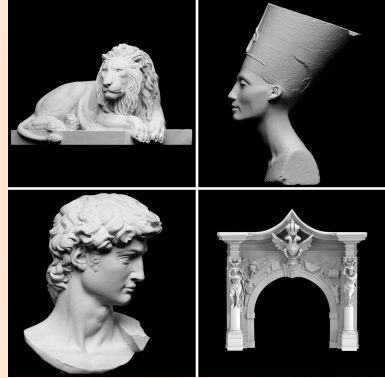
It evolved into a device with a
touchscreen interface.

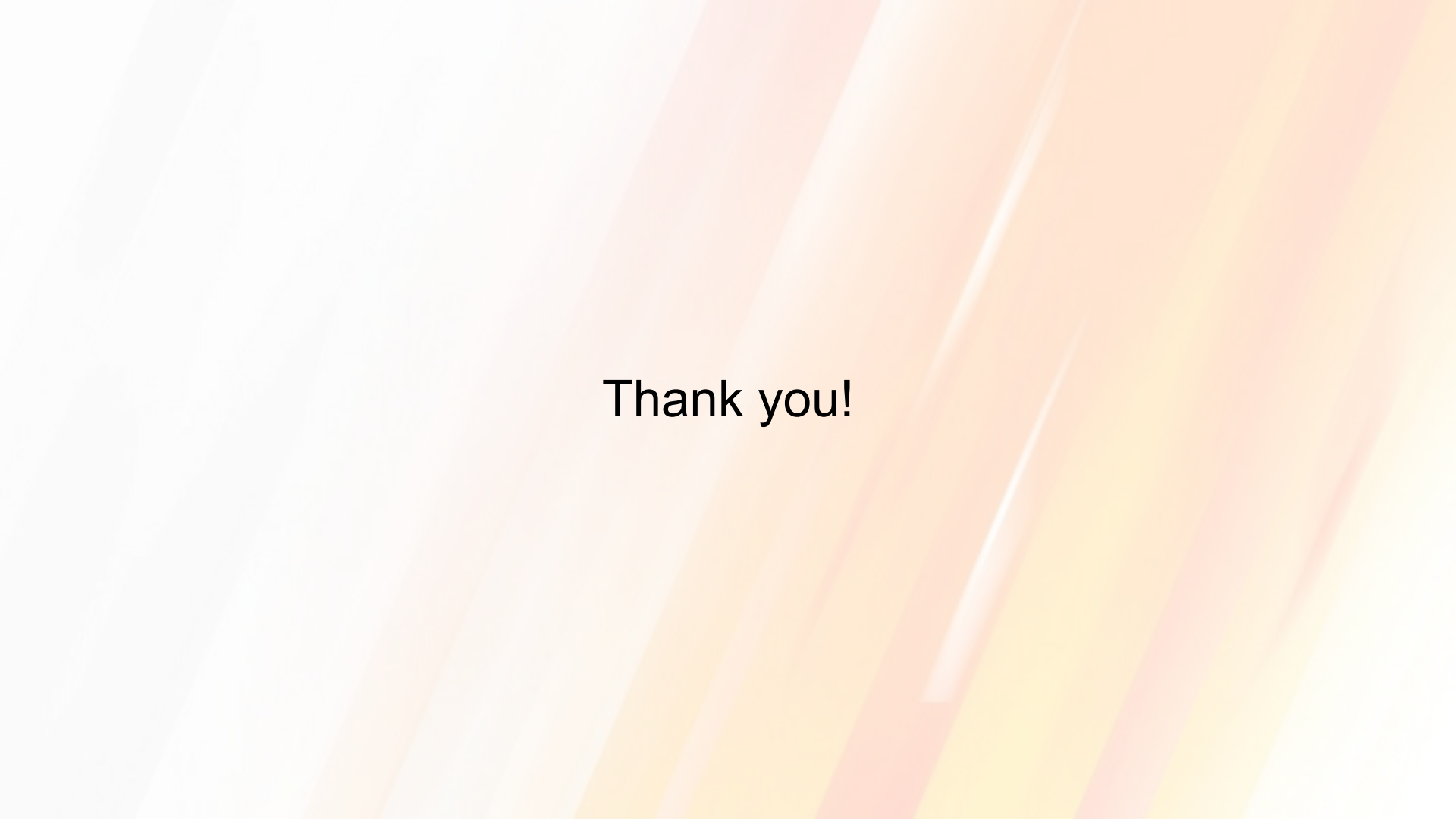
Each finger is sensing vibrations
related to specific parts of the audio spectrum.



Other ways to be inclusive

- 3D printed copies of sculptures and real objects
- Audio indoor navigation, using BT beacons
 - Audio guide apps that are triggering narration automatically
 - Video guide apps for the hearing impaired
- Augmented reality apps
 - Add scrollable descriptions on screen next to the exhibit
- Room wide conversation triggered by vocal request
 - Using speech recognition and pre-programmed chat bots
- Specific issues?





Thank you!