Wearable, AR e VR - O que podemos encontrar no mercado e o que há de promissor?

SAUL DELABRIDA

Wearable Book

Research Essentials

Examining Developments and Applications of Wearable Devices in Modern Society

Saul Emanuel Delabrida Silva, Ricardo Augusto Rabelo Oliveira, and Antônio Alfredo Ferreira Loureiro

IGI Global
DISSEMINATOR OF KNOWLEDGE

Wearable

Wearable

Wearable has been studied since 1980's

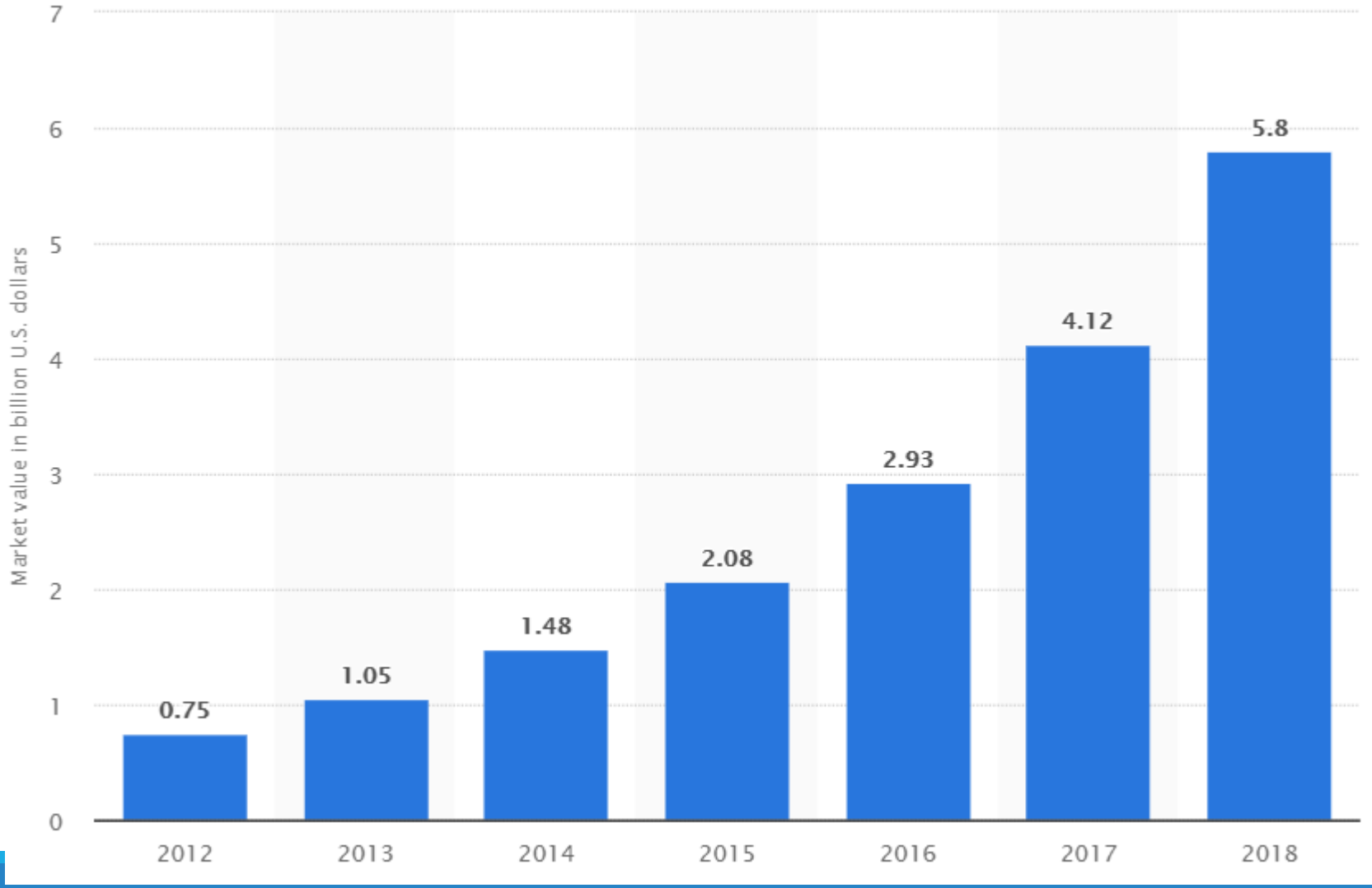
It use increased in the last years due to the smartwatches, smartglasses and other devices

Most applications are focused on health.

A MUCH More Diversified Market Than Investors Realize

CREDIT SUISSE

Market


Market value in billion U.S. dollars
7
6
5
4
3
2
1
0
0.75
1.05
1.48
2.08
2.93
4.12
5.8
2012
2013
2014
2015
2016
2017
2018

What wearable devices can do to me? 1/2

Sensors devices

- Sensing data from your body
- Sensing data from your context-aware

Provide you support for diary tasks

- Sports (Run, bike and others)
- Health (your health conditions)

Example of Devices

What wearable devices can do to me? 2/2

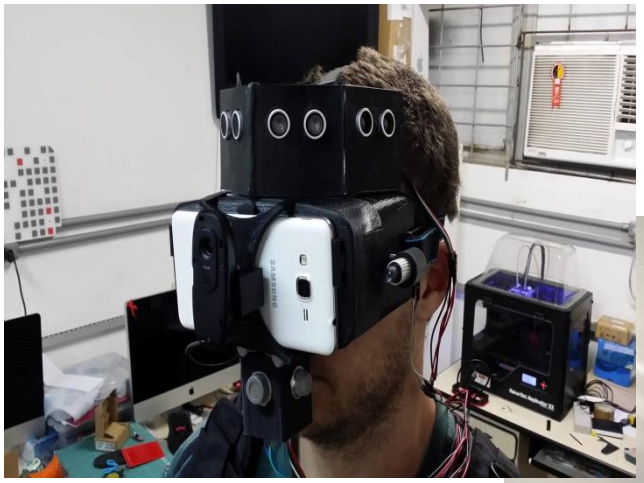
UI devices

- Smartwatches provides you an alternative way to interaction
- HMD's are more promising technologies for user interaction

Provide you support for diary tasks

- AR on Industry
- VR for immersive training

HMD – Head Mounted Display



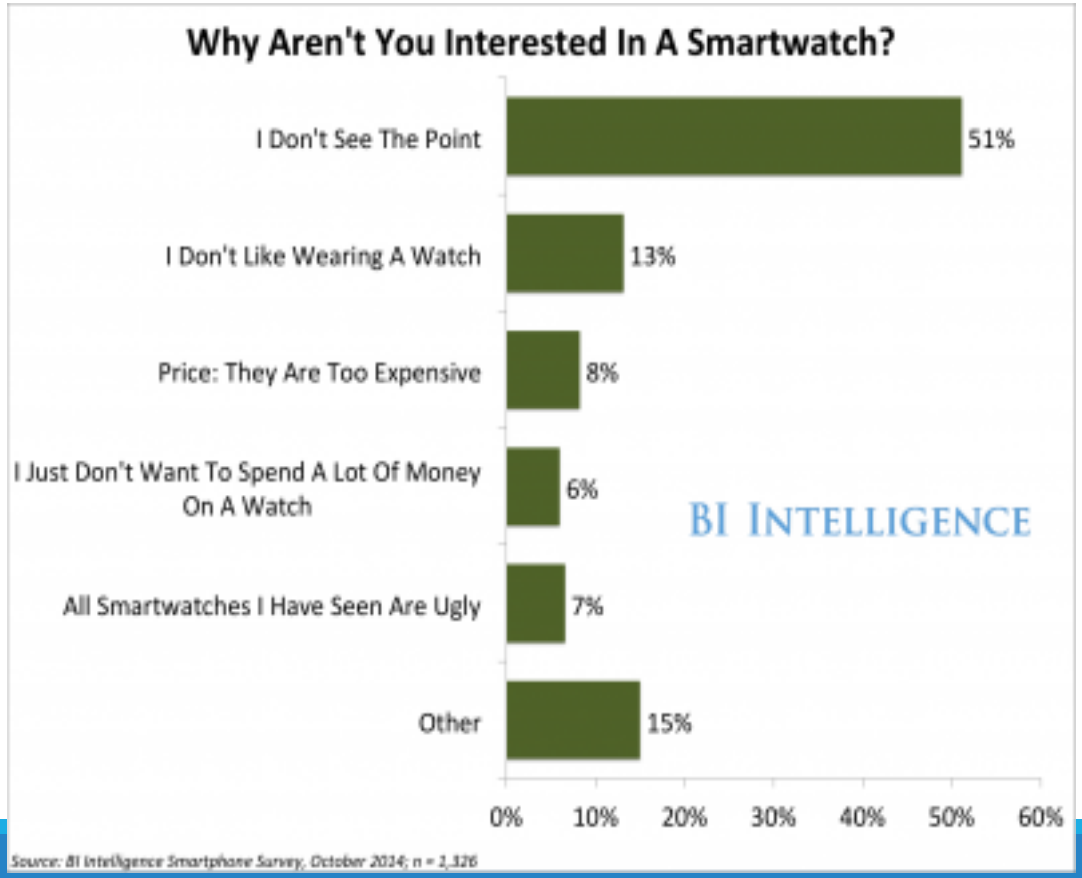
The Current Stage of Wearables

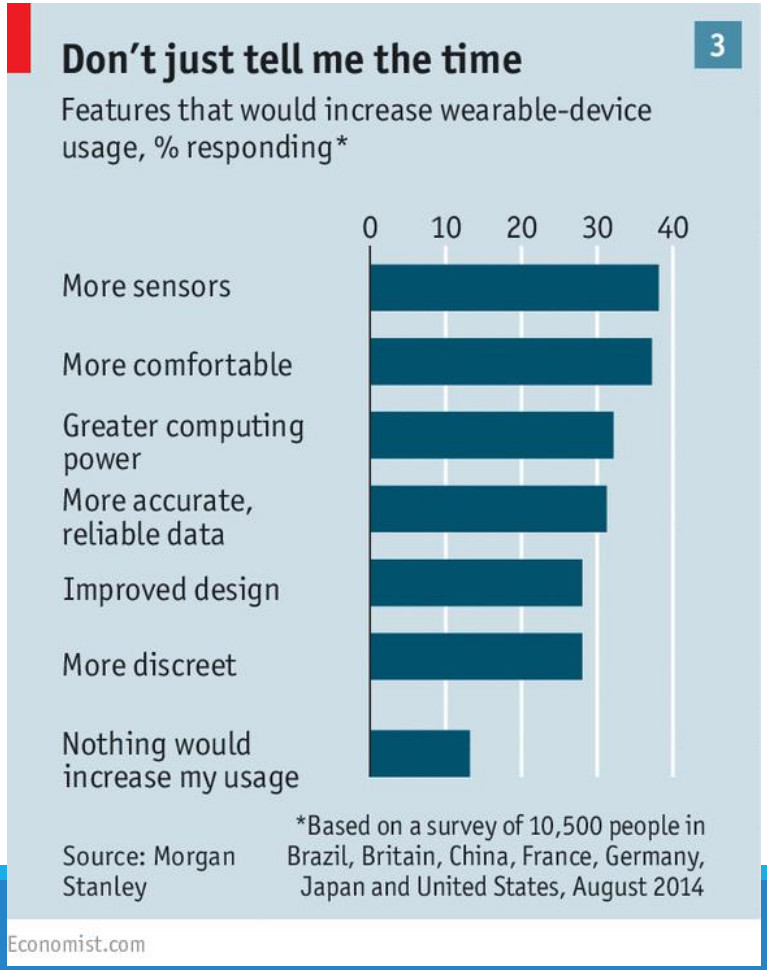
Most users have concerns about privacy

- Can my wearable be used to plan a stole?
- What about the frontiers of privacy and self-disclosure?

The Current Stage of Wearables

Users can’t see the value offered by wearable





Our Findings

How can we improve the user experience with new wearable devices?

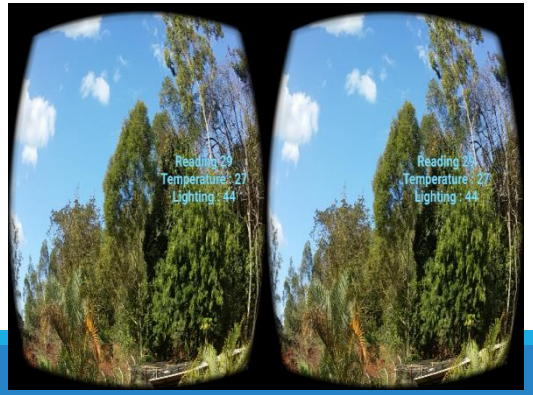
How to do more flexible devices?

- More resources (sensors)
- More application
- More independent
- More enjoyable equipment
- New Applications instead those for health purposes

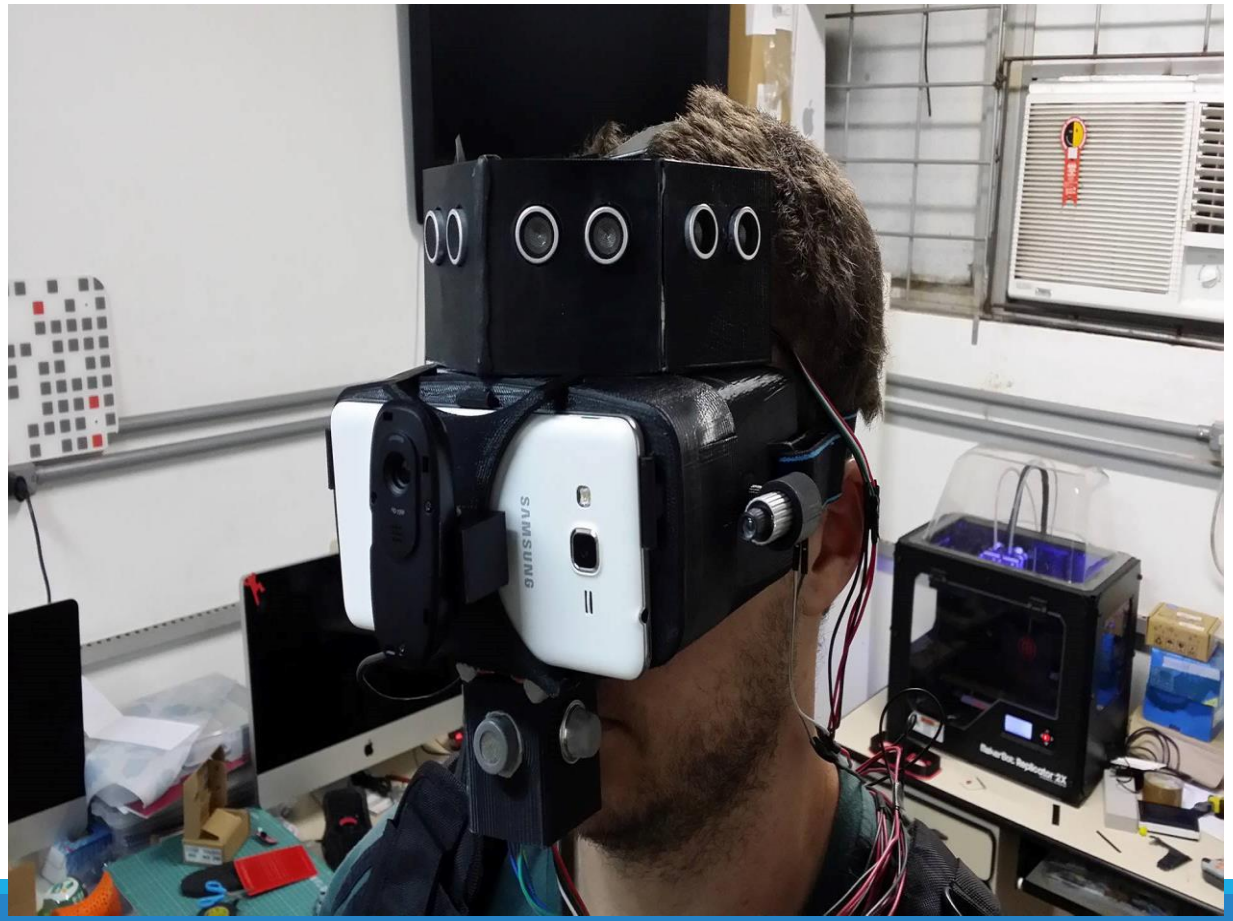
Smart wearable: Let's think wearable from a new perspective

Our Projects

Wearable for Ecology



Passive Sensor Board (PSB) with 14 Sensors connected



At UniSA

There is no a research group with similar experiences in Brazil

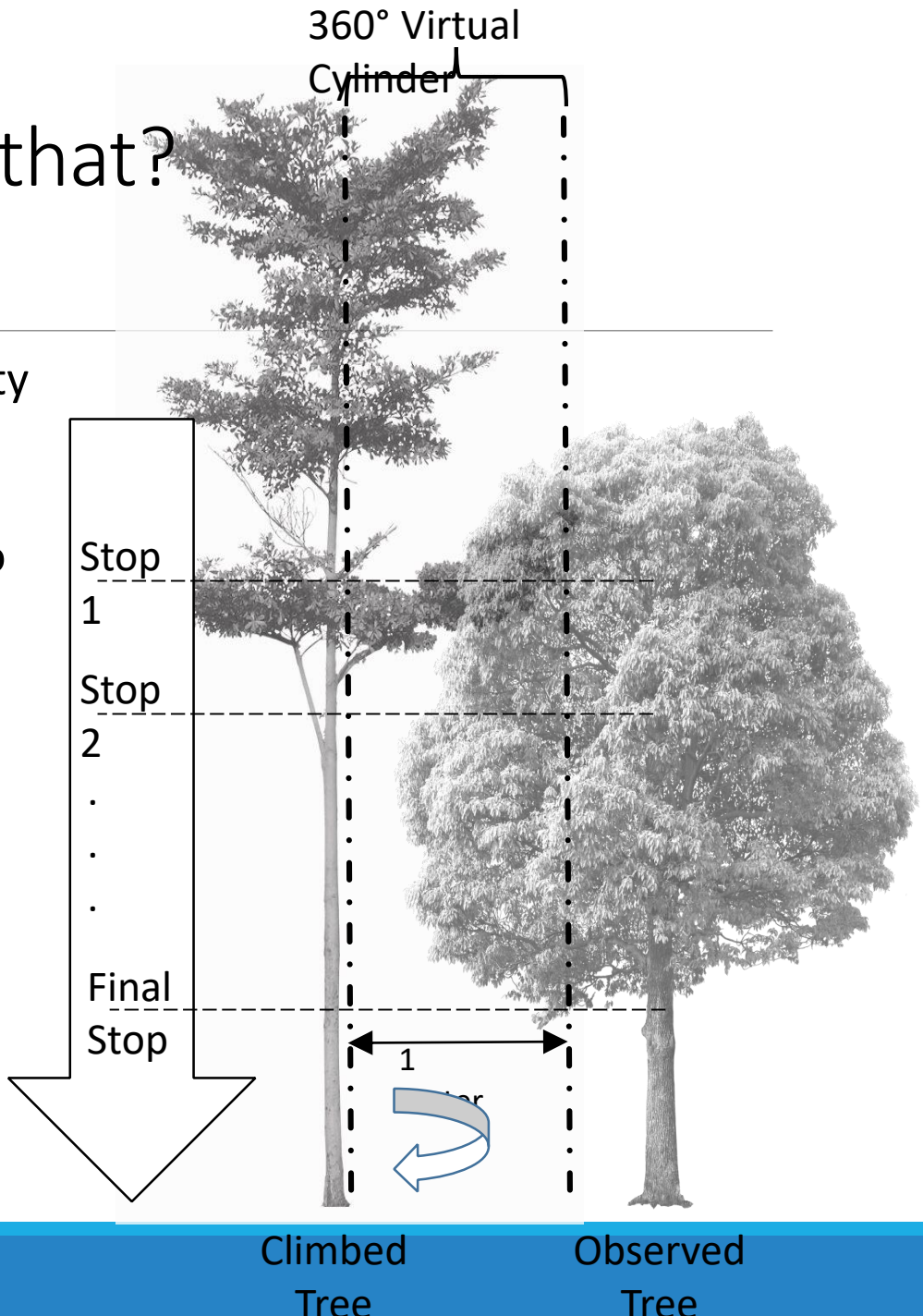
I need learn more about UX for wearable devices

Then, Australian group was focused on build wearables, evaluate new technologies and understand the user behaviour

I have worked developing a model for user interaction with ecology after 3D scanning

How do Researches do that?

- They climb on the treetop using safety equipments
- They do stops while is descending, lock the safety equipment in order to take their hands free.
- Leafs should be counted in order to define the density
- On each stop they collect the measurements
  about 1 meter around them (Not exactly from the tree trunk)
- The joint of data collected on each stop provides the
  Virtual Cylinder of the measured area

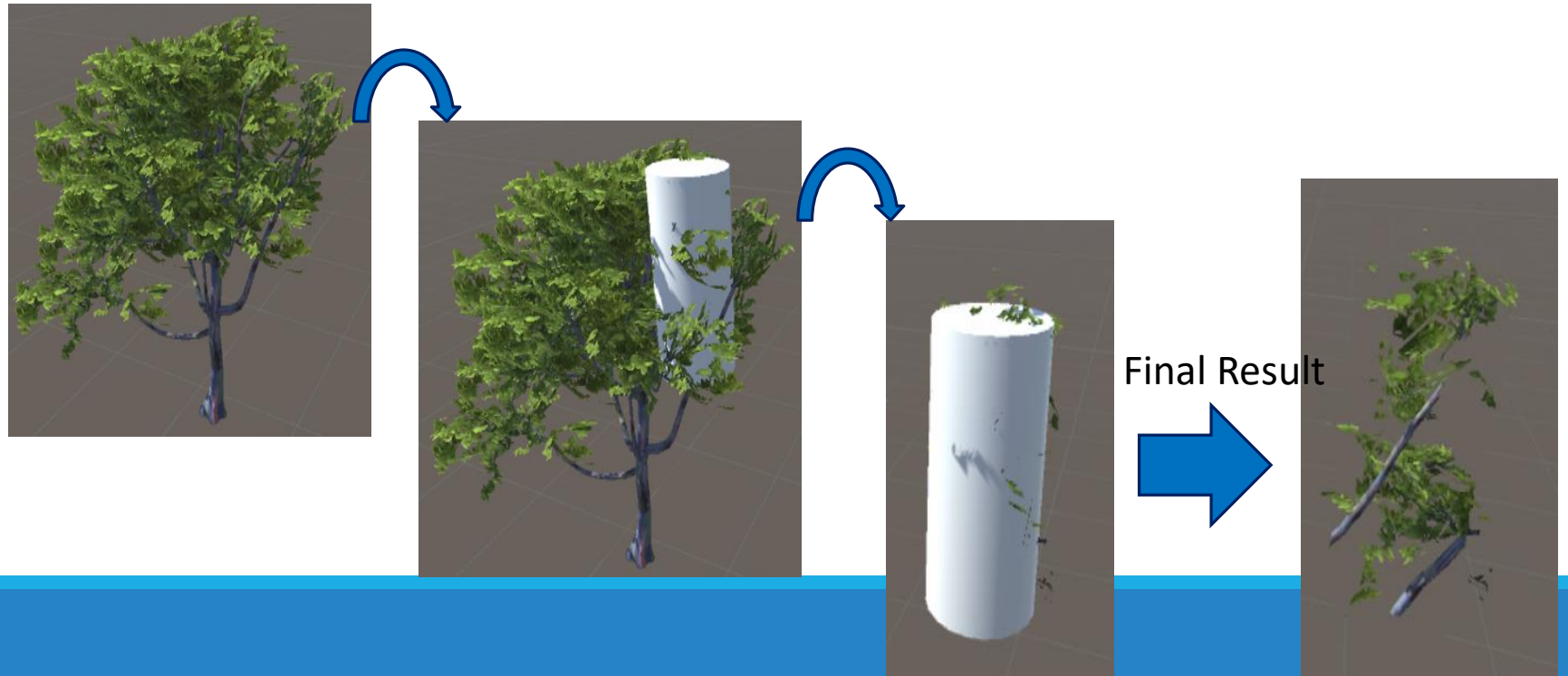


Environment and Working Condition

- The staff need of their hands and other body members in adverse circumstance
- Feet, hands are used to do movements, but, they can be free while user is stopped
- They have their own ways to make the measurements
- They are full time seated
- One user reported the thigh is more comfortable member to take a base for annotations

Application Construction

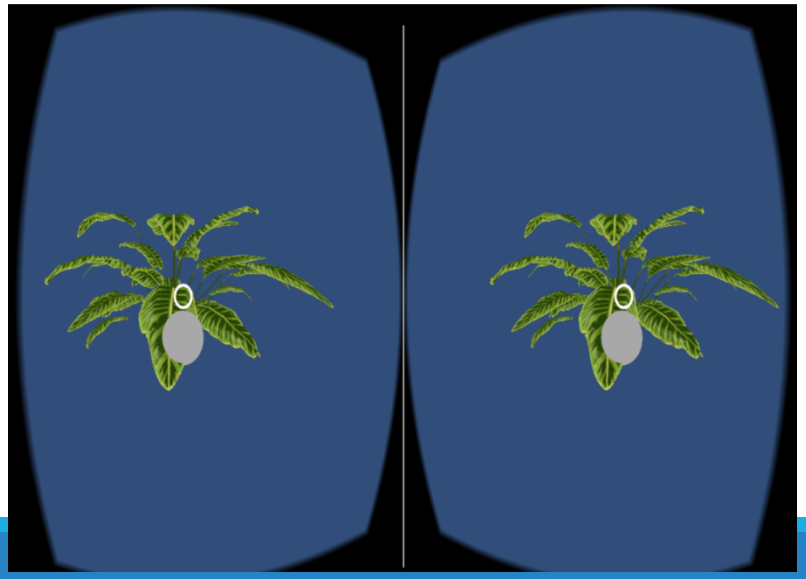
1. To scan 3D – To this proof of concept we used a Google Tango smartphone
2. Import them in a 3D modelling tool – The result is a ".obj" which represents the 3D model. Unity 3D was used as a tool for creation an import into a VR device
3. To construct the Virtual Cylinder – Before import the system to a VR device we subtract the interest region for study based on

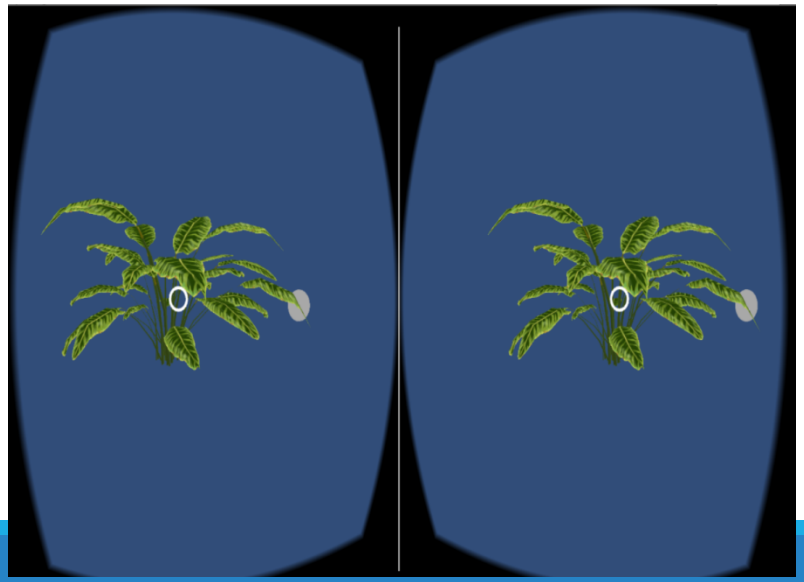


VR/AR Application for User Interaction

- Google Cardboard API was used for development
- User has a reticle for indicate the leaves
- Then, he/she uses an input interface for tag a leaf.

https://www.youtube.com/watch?v=Pk0_vhC4IPw





Next Class
Fast Protyping

Fast Prototype

You should discuss a new application

Then you can design it in a paper

Use this app for make your first prototype

- https://marvelapp.com/pop/
- https://www.youtube.com/watch?v=EGp20lVwUa8

We will do a class activity for collaborative evaluation

Thanks for your attention!

saul@sdelabrida.com