

# Sandbox Overview

## Sketch



## Problem

Because the science instrument teams are not collocated in Pasadena with the spacecraft engineering teams, the science teams retain Investigative Engineers (IE) and Investigative Scientists (IS) to be their representatives in Pasadena. The IE and IS need to communicate the goals of the instrument teams to engineers, and this can be difficult due to the need to convey information that cannot be easily imagined in the moment.

## Target User

IE and IS

## Medium

Mixed Reality (Hololens)

## Concept Description

Sandbox allows an IE or IS to more easily convey instrument team science goals and requirements by supporting conversations with engineers with animated holograms. The holograms are meant to be lower fidelity to represent concepts, rather than actual precise data.

These holograms can then be saved by the IE, IS, or engineer for later use in their office or in meetings.

# Sandbox Concept

## THOUGHTS

"How do I translate this info?  
"What toolset do I need to get this done?"

"How am I going to get this done?"

"I wonder what they will think?"

"I hope this works"

## EMOTIONS

+  
positive

Motivated

Anticipatory

Anxious

-  
negative

Stressed

Overwhelmed

## STEPS

- Finish video conference with science group
- Writing down notes
- Understanding requirements
- Grabs HoloLens
- Translates requirements into model
- Save for Later
- Travel to storage and grabs another HoloLens
- Preps 2nd HoloLens
- Goes to Trajectory Engineer's office
- Asks for time to share science requirements
- Both looking at assets

## FRONT

● People  
● Things

Science Group Notes  
WebEx  
Laptop

Other IE/IS

HoloLens

Holographic Interface

2nd HoloLens

2nd HoloLens Interface

Trajectory Engineer

HoloLens Interface

## BACK

Internet

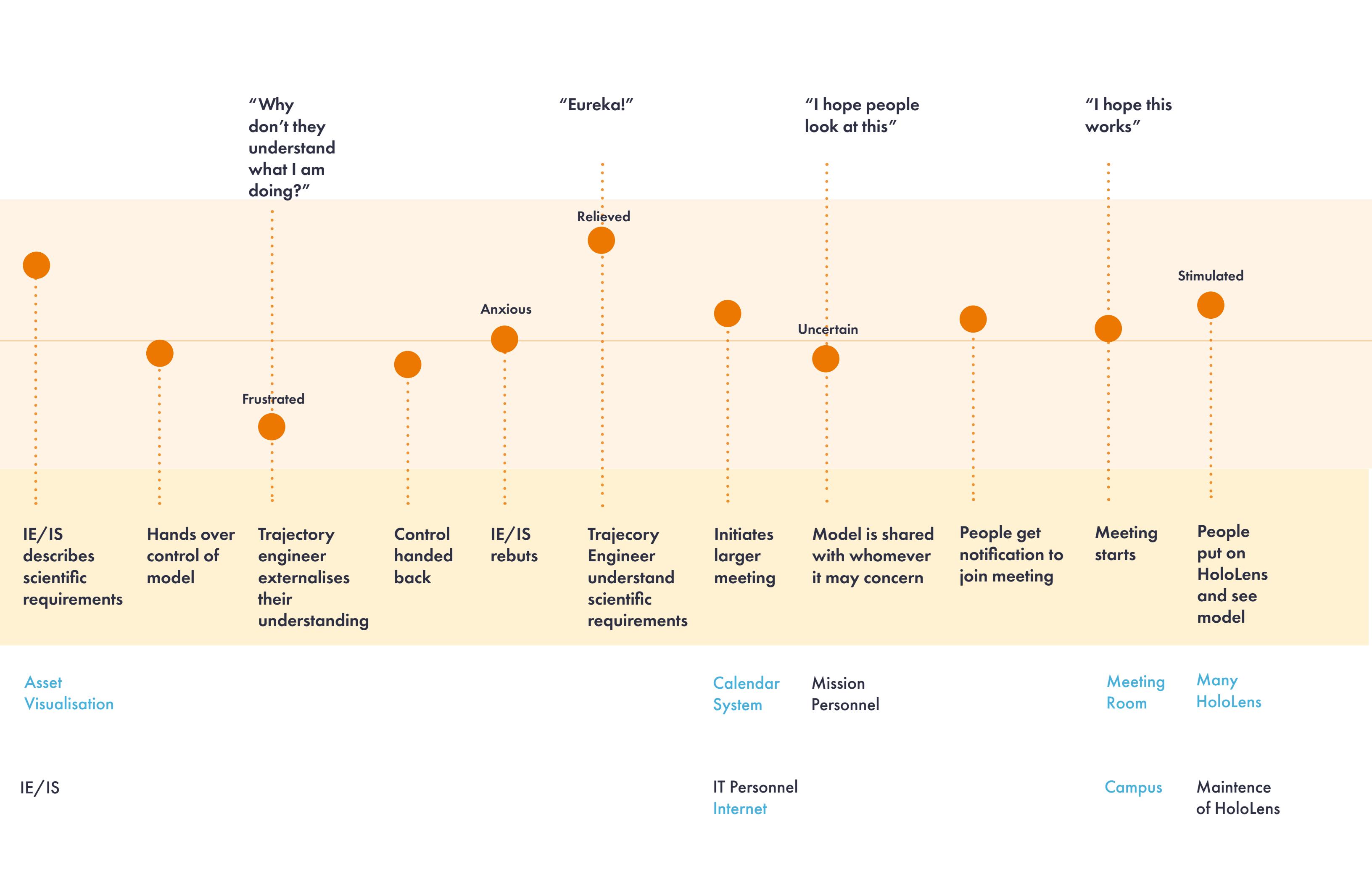
Maintence of HoloLens  
Windows  
Battery

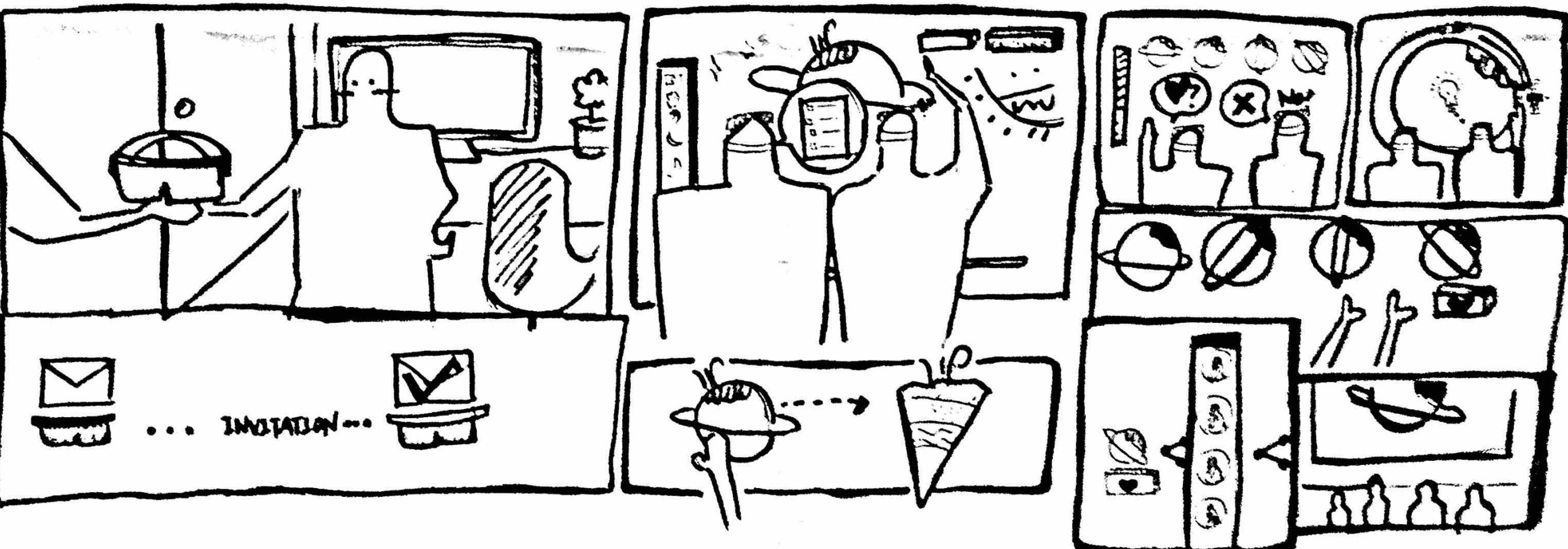
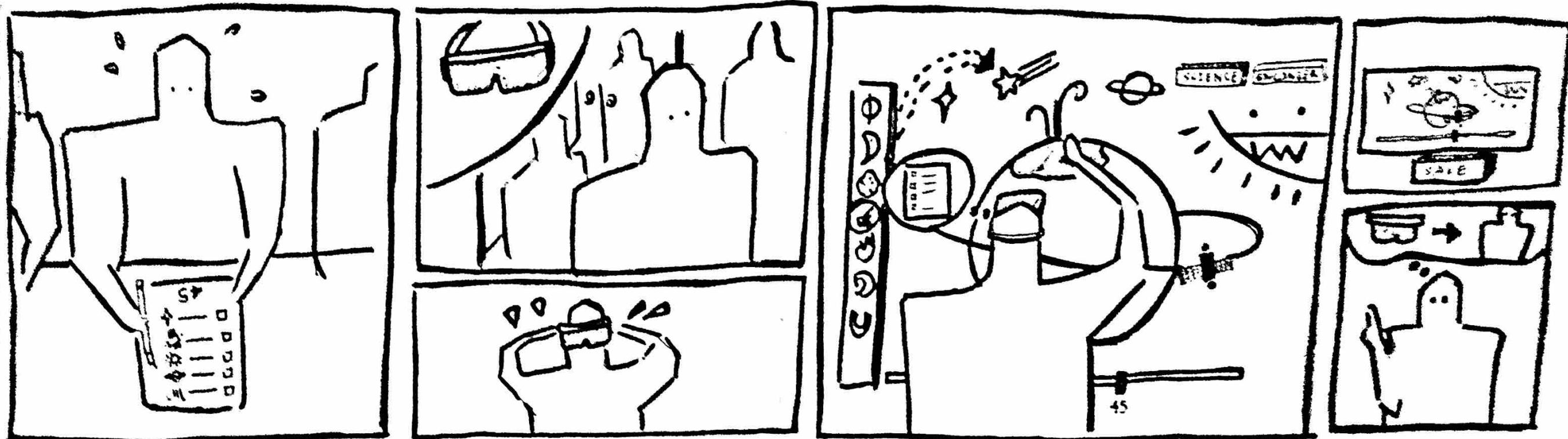
Maintence of HoloLens

Ops Lab

Other Science Groups  
Previous Experience in AR

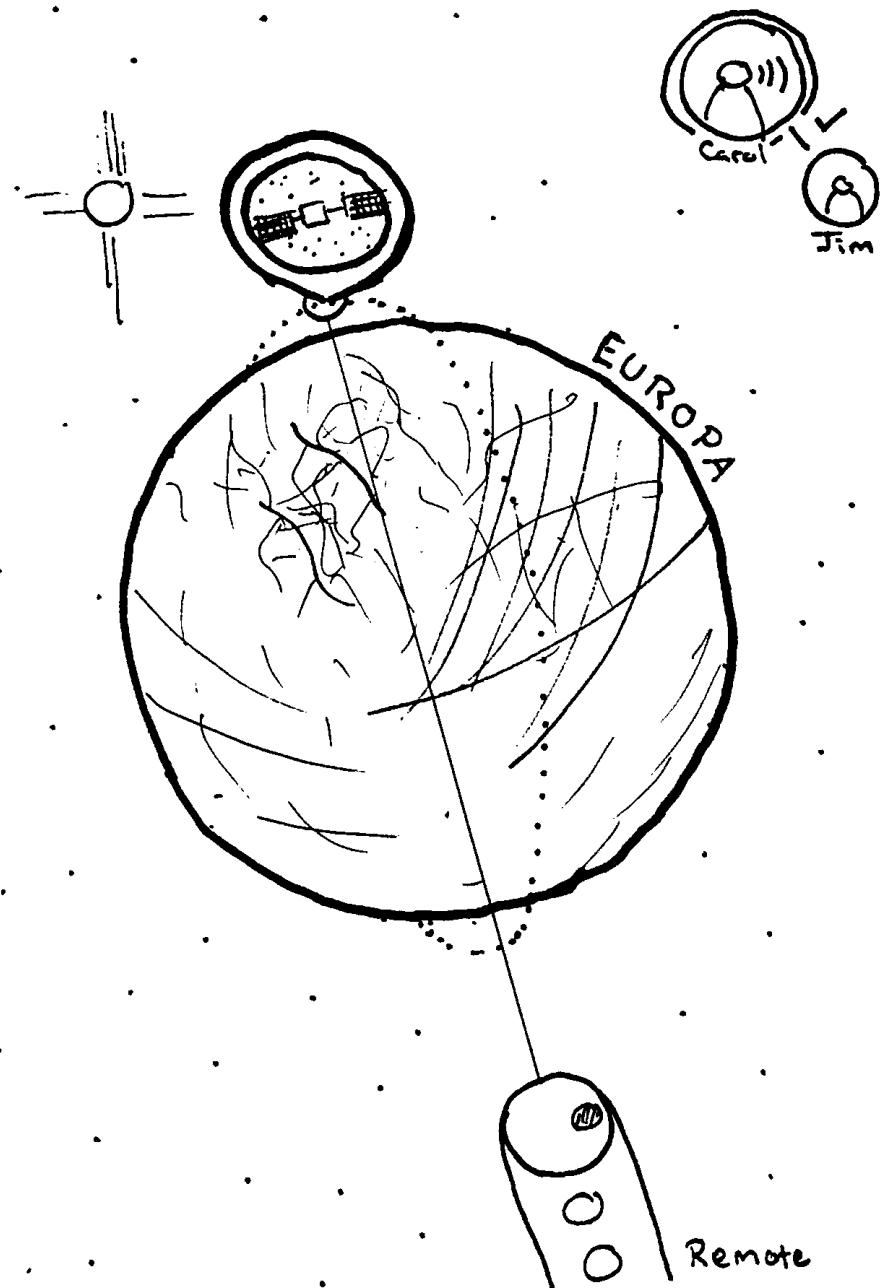
Ops Lab





# VR Timeline Overview

## Sketch



## Problem

Remote collaboration is a challenge at the best of times. Scientists frequently need to do this on a weekly basis and discuss complex information or trends. Unfortunately, they need to frequently resort to email, phone, or video call to contact people who are not collocated. This limits the range of possible information that can be transmitted effectively.

## Target User

Instrument Scientists

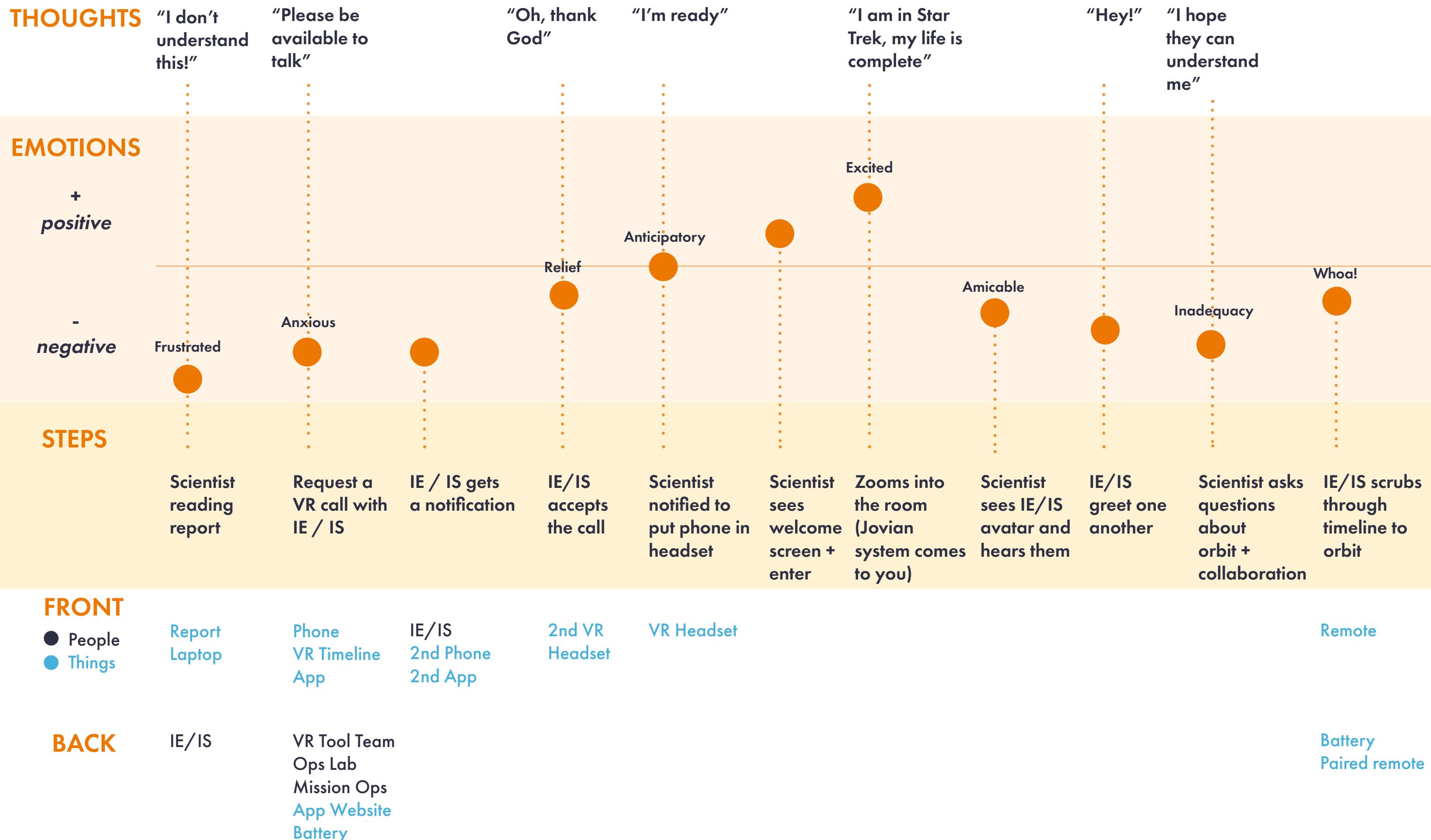
## Medium

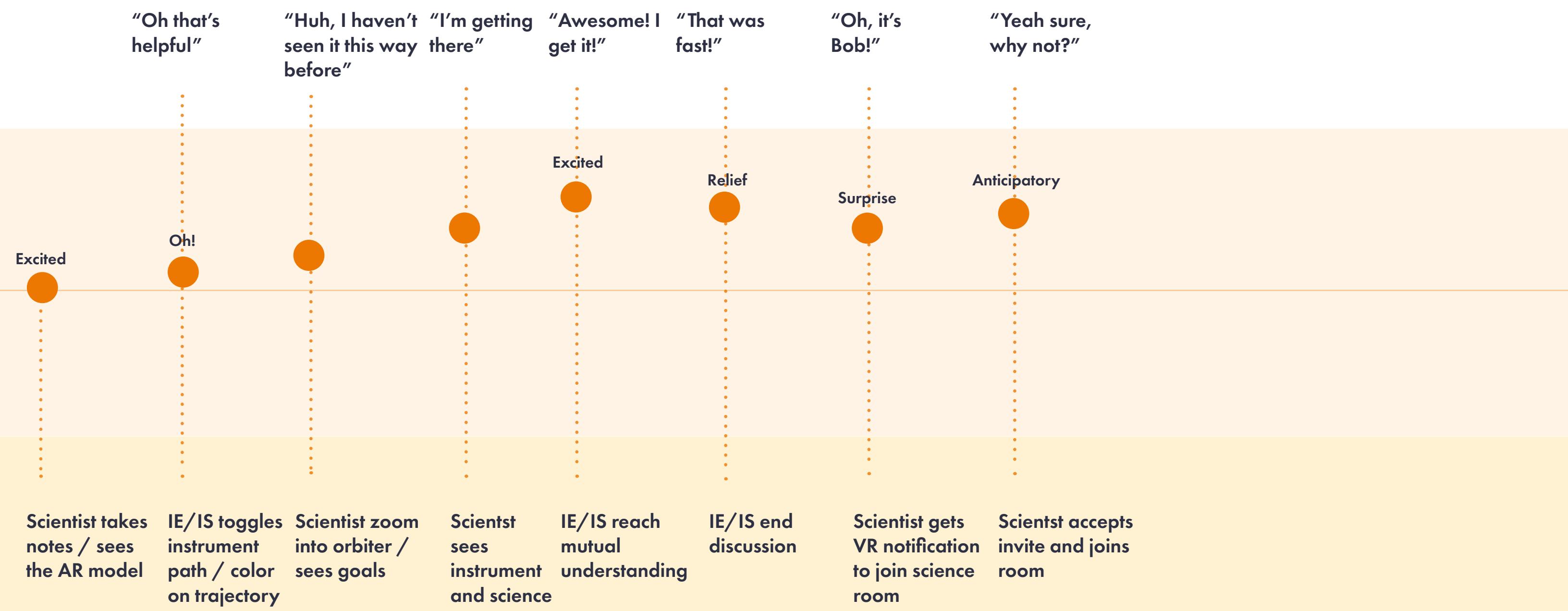
Augmented Reality (Daydream)

## Description

The VR Timeline tool allows people to quickly clear misunderstandings up remotely by contacting the author of a standalone report. They can join a VR chat room through their phones, and then use a 3D representations of Europa to visualize information quickly.

## VR TIMELINE CONCEPT

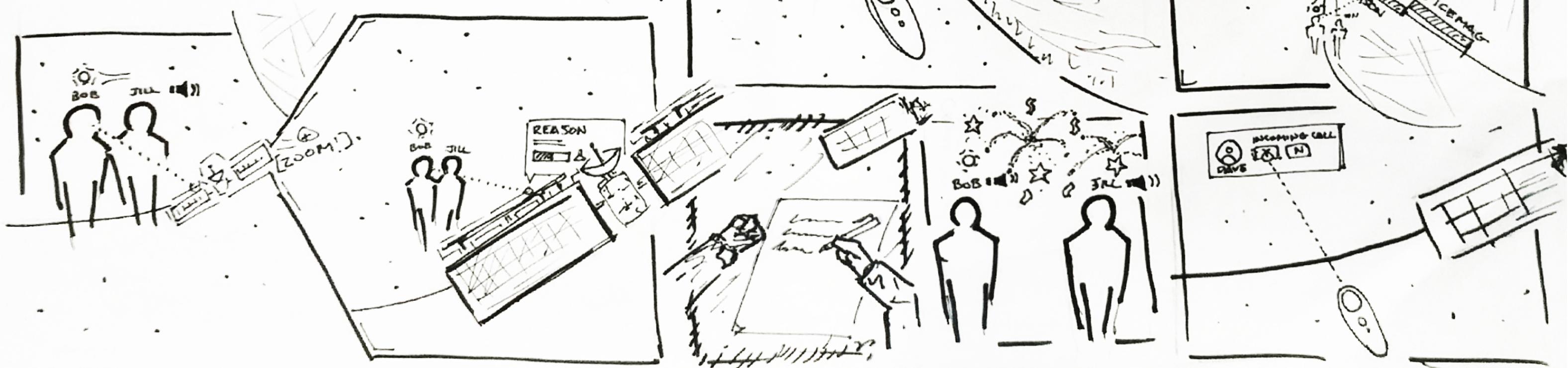
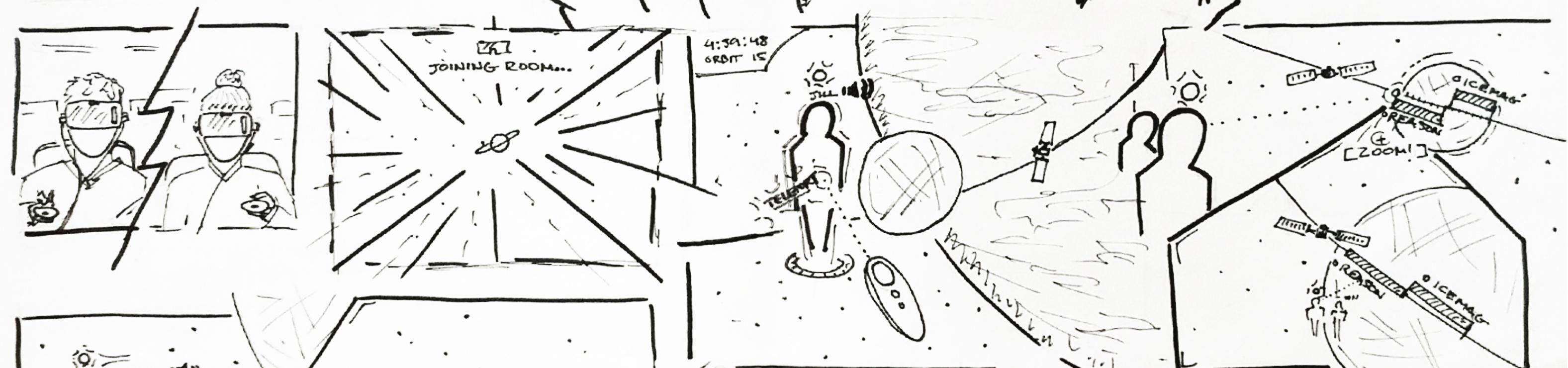




Notes  
Pen

Remote

Calendar  
System



VR TIMELINE TEST