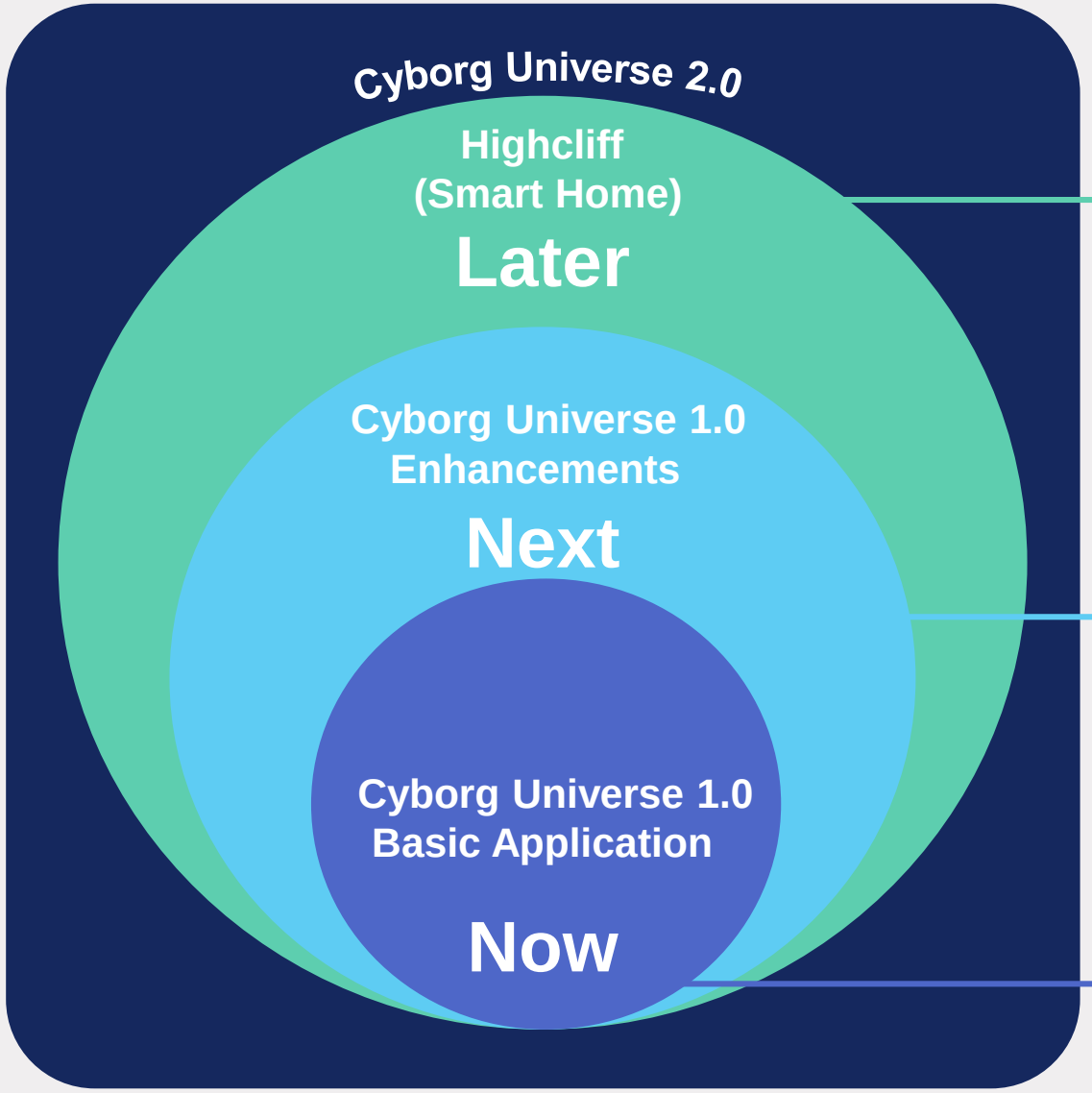
May 17, 2021

# Scott-Morgan Foundation

## PORTFOLIO

Scott-Morgan Foundation Proprietary and Confidential

# SCOPE




To build a fully automated house for a modern family that interfaces directly with Augmented Reality

**Future work**

To integrate advanced features and improve on the performance of the speech synthesizer, art creator, mobility wheelchair, and health tracker

**Coming up soon**

To create an eye-gaze powered application that enables PSM do his day-to-day activities: speech assistant, health tracker, mobility wheelchair, and AI art creator

**Currently working on**

HoloLens

## SPEECH ASSISTANT

Translates text-to-speech with intelligent assistant

## MEDIC

Monitoring life functions

## ARTIST

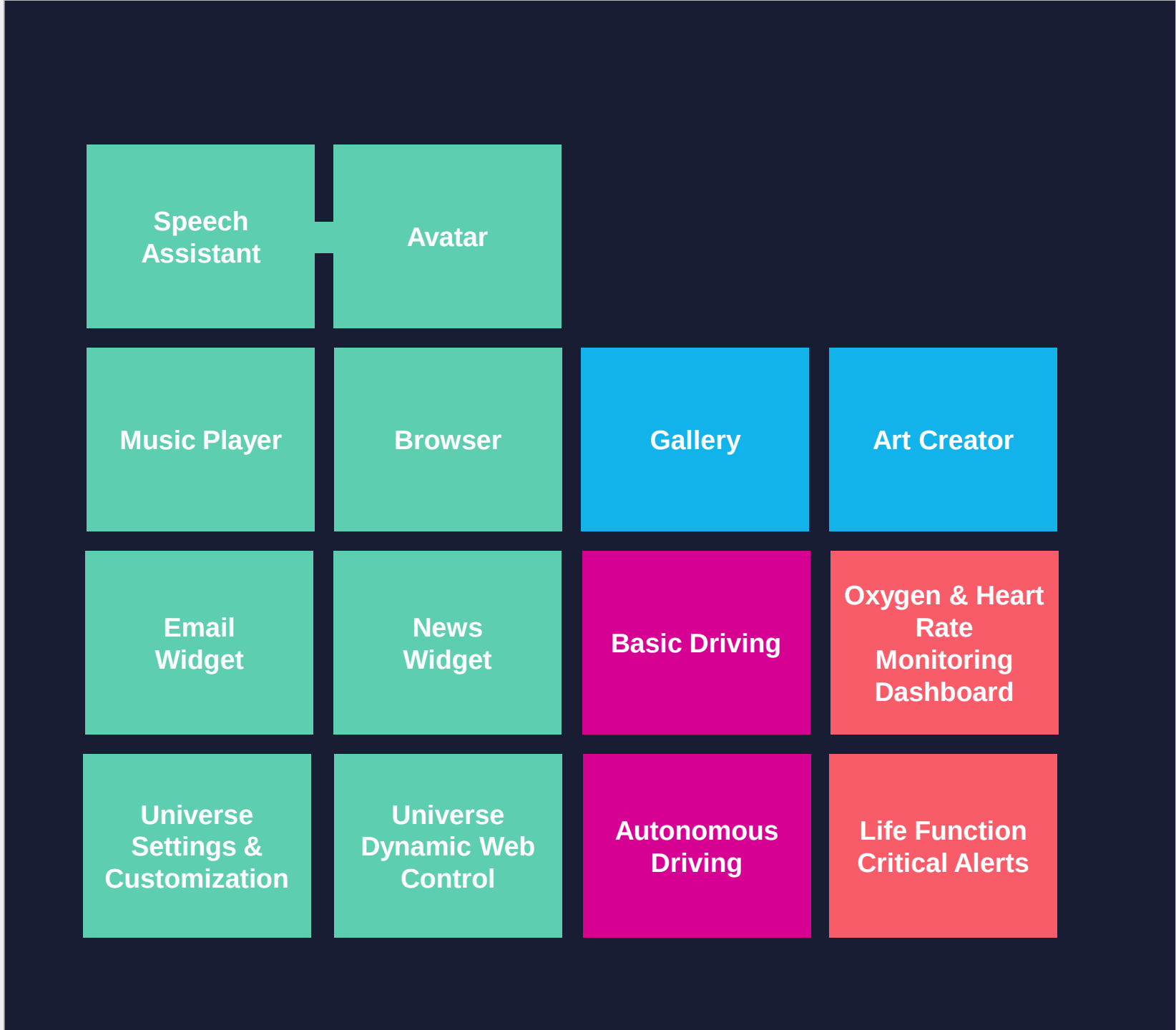
Creating art with neural networks

## MOBILITY

Self-driving wheelchair

# Cyborg Universe Scope & Features

These are the major features that the team are currently building.



# HIGHCLIFF PURPOSE

Highcliff is set to be the subject of a major mainstream documentary, book, podcasts, and substantial media attention.

This will be an opportunity to showcase capabilities and make a mark as a leader in Applied AI.

# HIGHCLIFF GOAL

A large contemporary south-facing clifftop villa on the English Riviera, set in a semitropical garden, a stroll away from both Torquay seafront and the beautiful rural village of Cockington.

To build a fully automated house for a modern family that interfaces directly with Augmented Reality.

This will include some of the ff. use cases:

- Mirror that automatically screens your health
- Bringing Peter to any part of the house using only one command
- Robots that help with cleaning and cooking
- Modifying immediate environment – temperature, lighting, music, artwork displayed on walls throughout the house
- Mirror that become personal stylists and suggests based on wardrobe content

# FEATURE OVERVIEW

## Cyborg Universe 1.0

- Speech Assistant
- Avatar
- Music Player
- Browser
- Email Widget
- News Widget
- Universe Settings & Customization
- Universe Dynamic Web Control
- Gallery
- AI Art Creator
- Basic Driving
- Autonomous Driving
- Oxygen & Heart Rate Dashboard
- Life Function Critical Alerts

**1 year**

## Enhancements

- Performance Improvement
- Smarter Reply Suggestions
- Voice Tuned Responses
- User Experience
- Art Blending
- Pre-processing Automation
- Historical Data
- Analytic Solutions

**6 months**

## Highcliff (Home Automation)

- Level 1: Smart Hub
- Level 2: Environment
- Level 3: Living Appliance
- Level 4: Healthcare
- Level 5: Safety/Security
- Level 6: Home Entertainment
- Level 7: Energy Management
- HoloLens Integration

**3 years**

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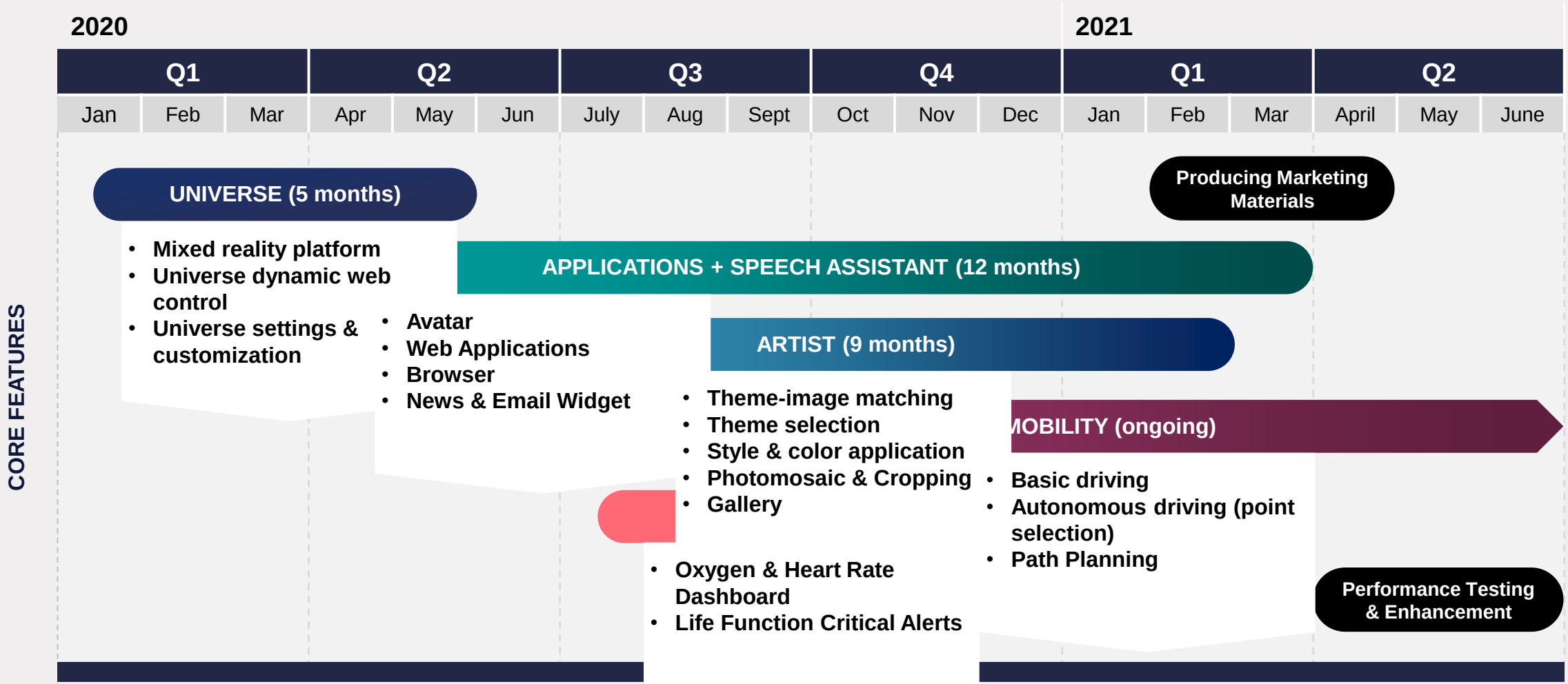
## Cyborg Universe 2.0

**4 years**

# CYBORG 1.0 ROADMAP

**GENERAL CHALLENGES:**

1. **UWP Incompatibilities – functionalities working in Unity but not in the HoloLens**
2. **HoloLens Testing - HoloLens Setup for PSM; needs some adjustment in wheelchair**
3. **Hardware Procurement & Constraints**

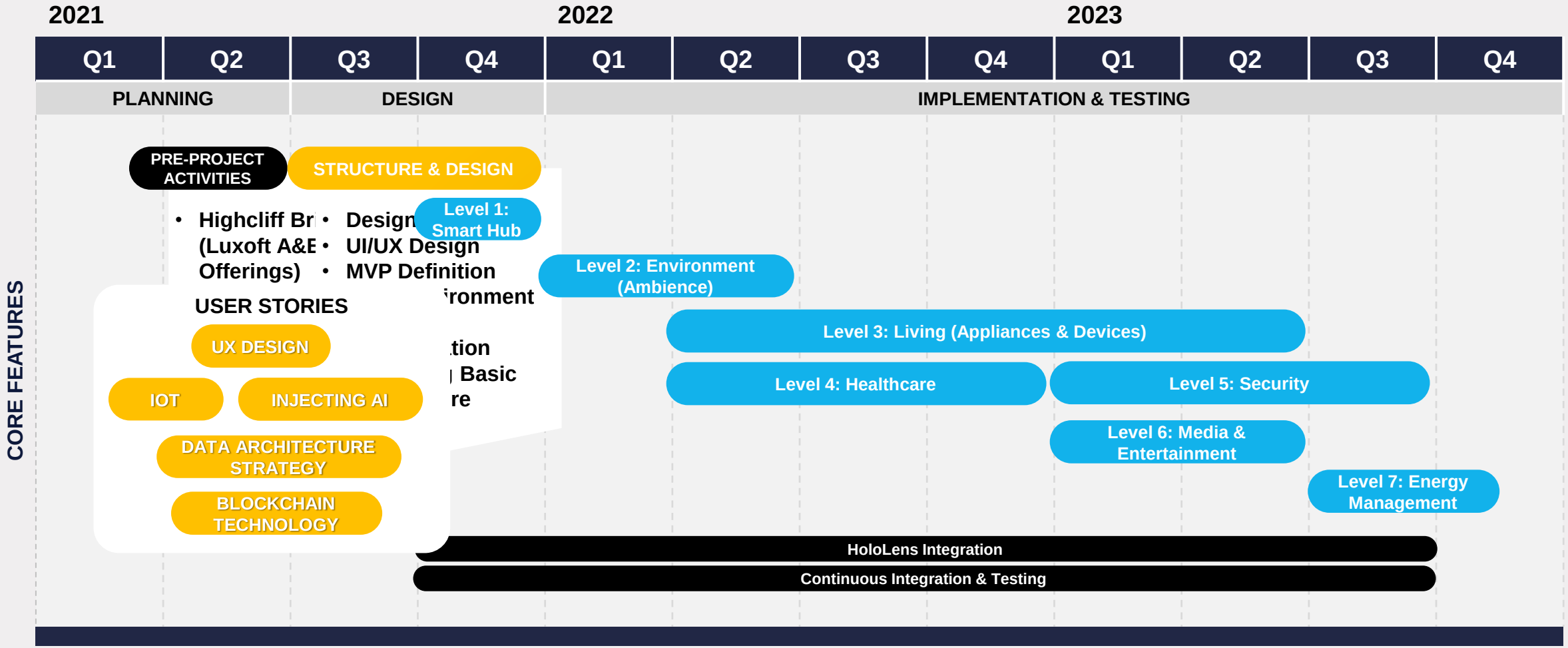



* timeline includes research

# HIGHCLIFF ROADMAP

**RISKS:**

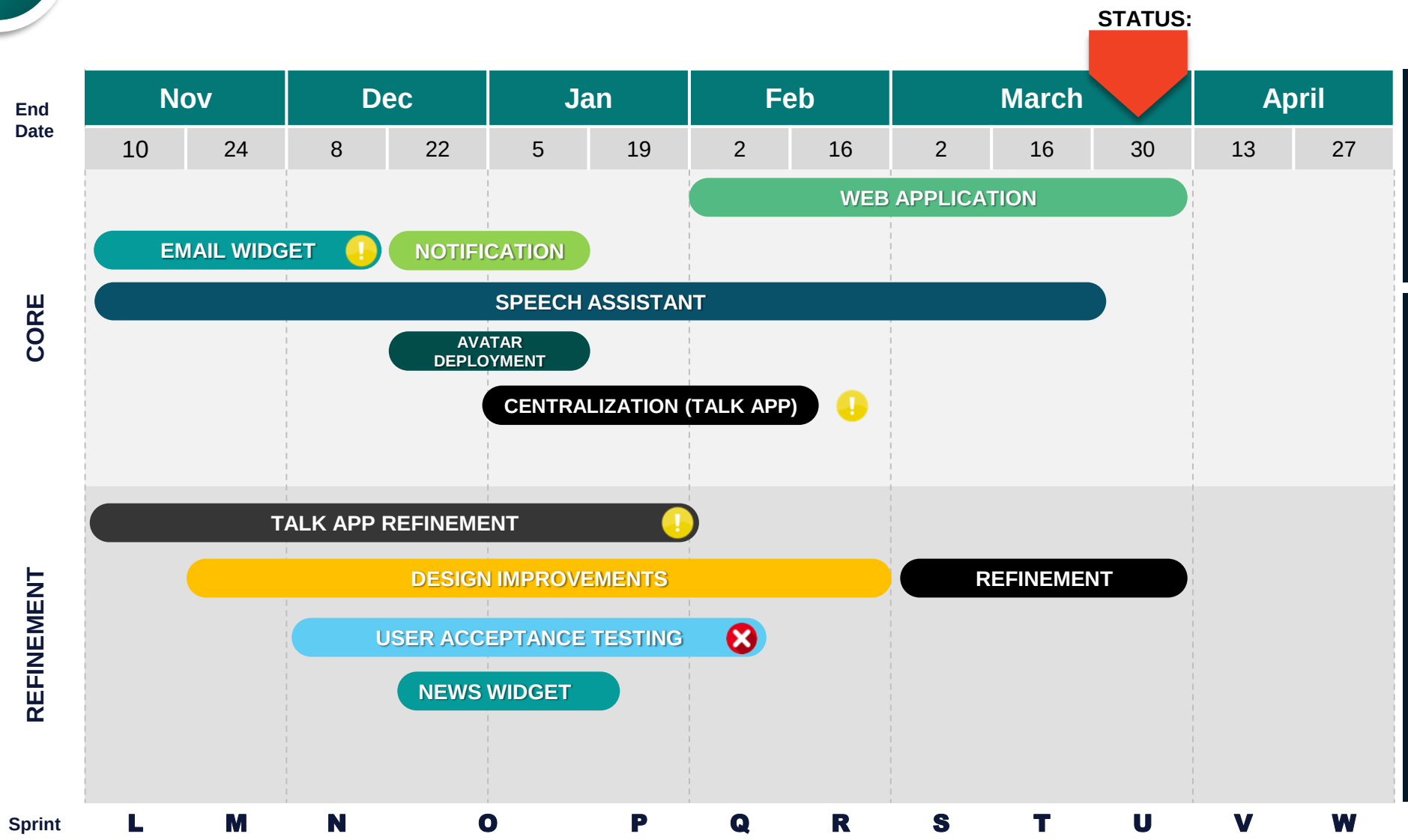
1. Risk in implementation and testing since the villa is in United Kingdom
2. Support from A&E Practices
3. All devices interfacing directly to augmented reality
4. Device Procurement & Integration




**Assumption:**

- Design & structure will start once the contract has been signed
- Estimations include research and augmented reality integration

# UNIVERSE 1.0 ROADMAP



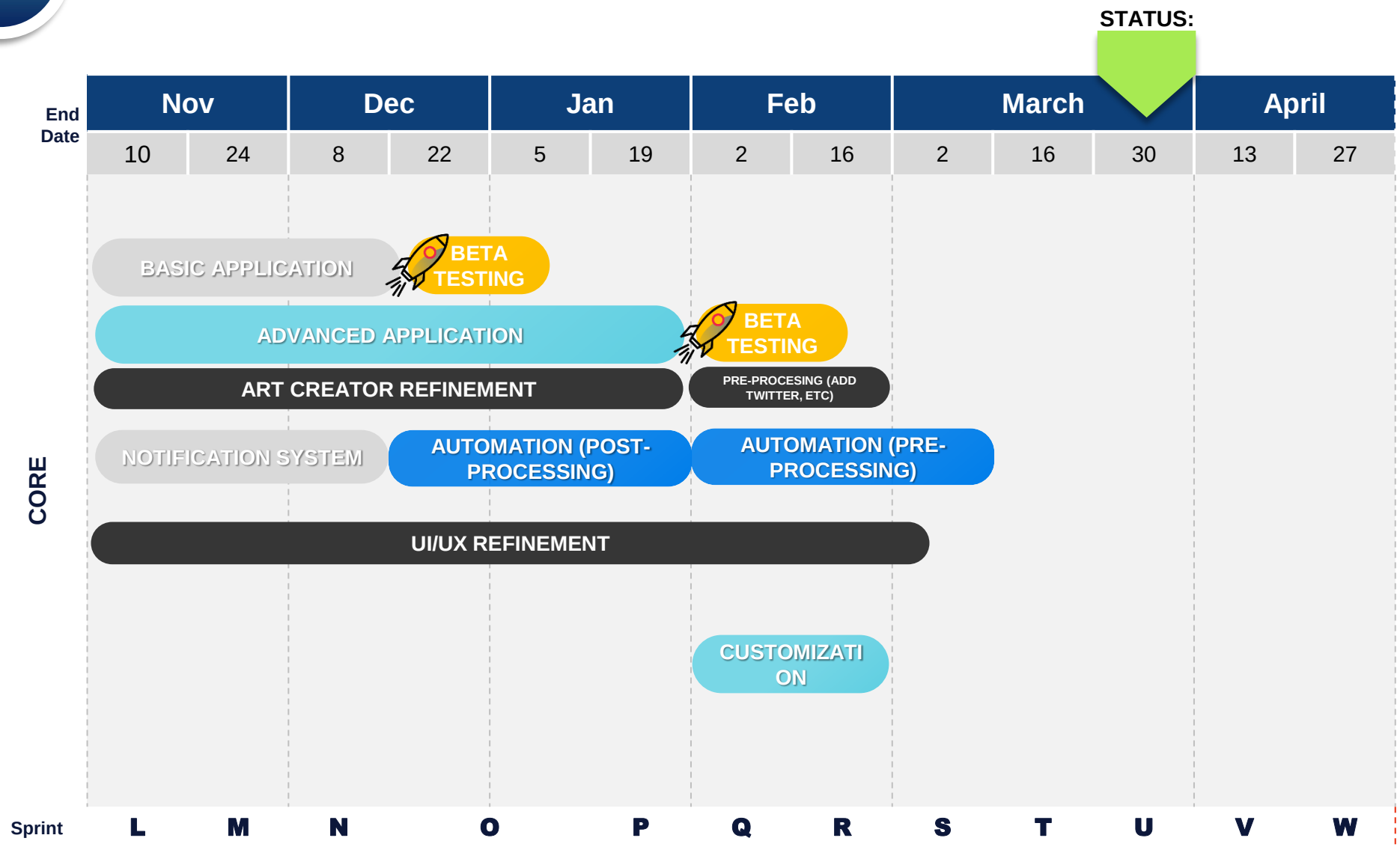

**RISK/CHALLENGE:**

1. **Cannot start UAT** – HoloLens Setup for PSM; needs some adjustment in wheelchair

**FUTURE WORK (2.0):**

1. Tune response in Talk Application
2. Enhance smart suggestions
3. Microsoft Office Application Extensibility Test

# ARTIST 1.0 ROADMAP



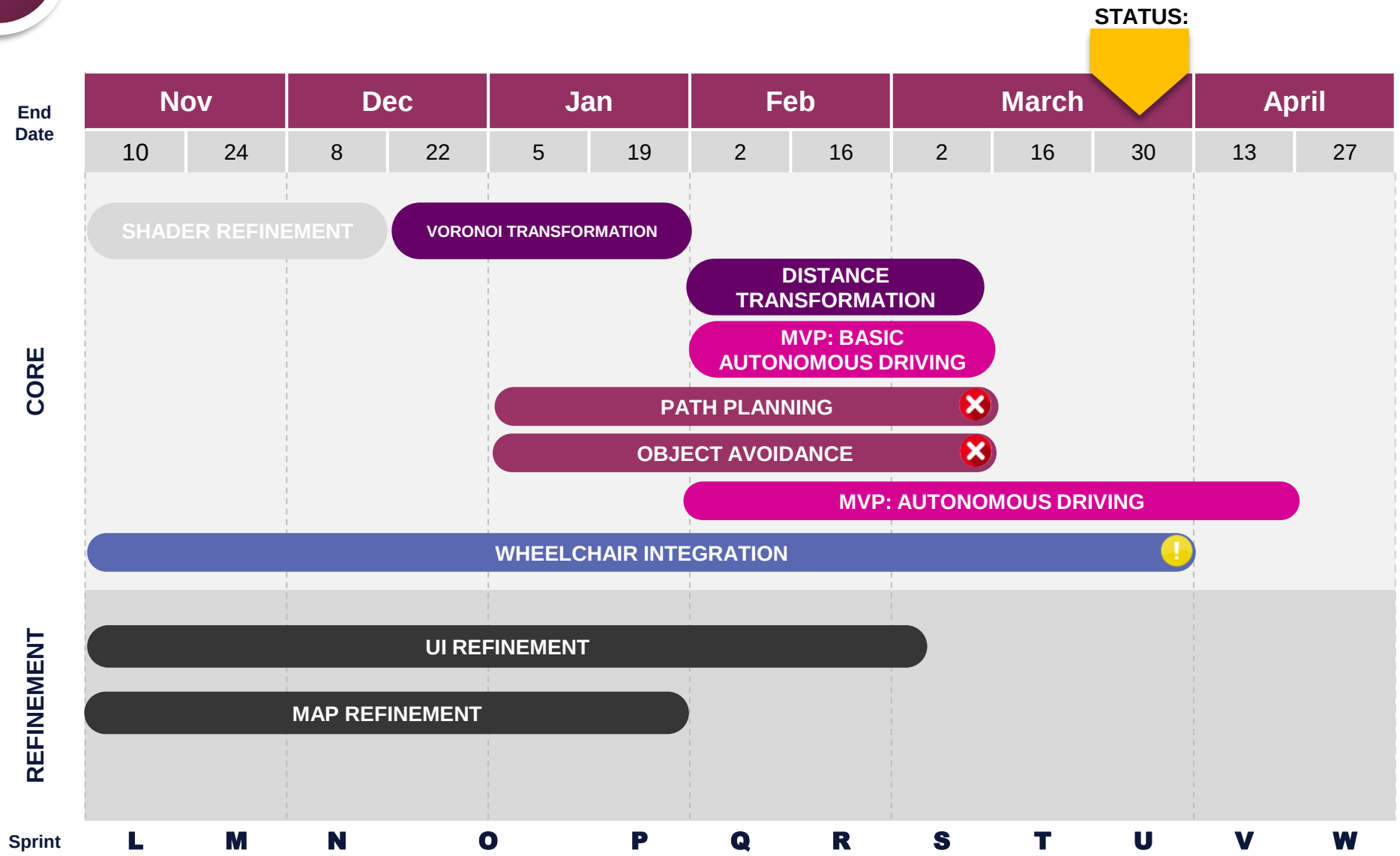

**RISK/CHALLENGE:**

1. User Acceptance Testing

**FUTURE WORK (2.0)**

1. Art Customization - Blending
2. Naming created art while saving
3. Pre-processing automation – twitter data, etc.

# MOBILITY 1.0 ROADMAP



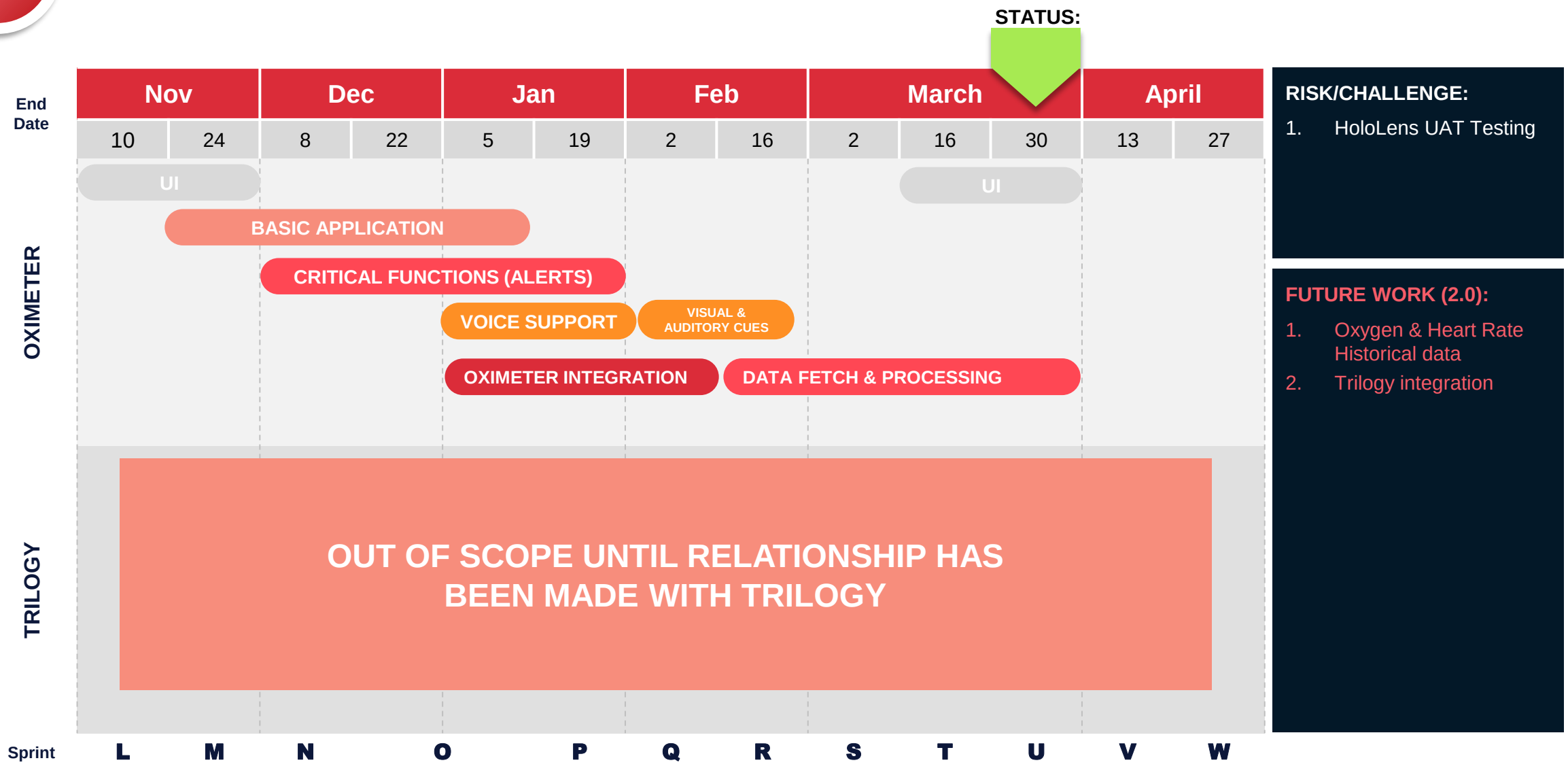

**RISK/CHALLENGE:**

1. Wheelchair Integration
2. HoloLens Processing – pending decision whether to have the mobility app as a separate app
3. UWP Incompatibilities

**FUTURE WORK:**

1. Path Planning
2. Identifying walkable path in the map (Map refinement)
3. Hardware Integration

# MEDIC ROADMAP



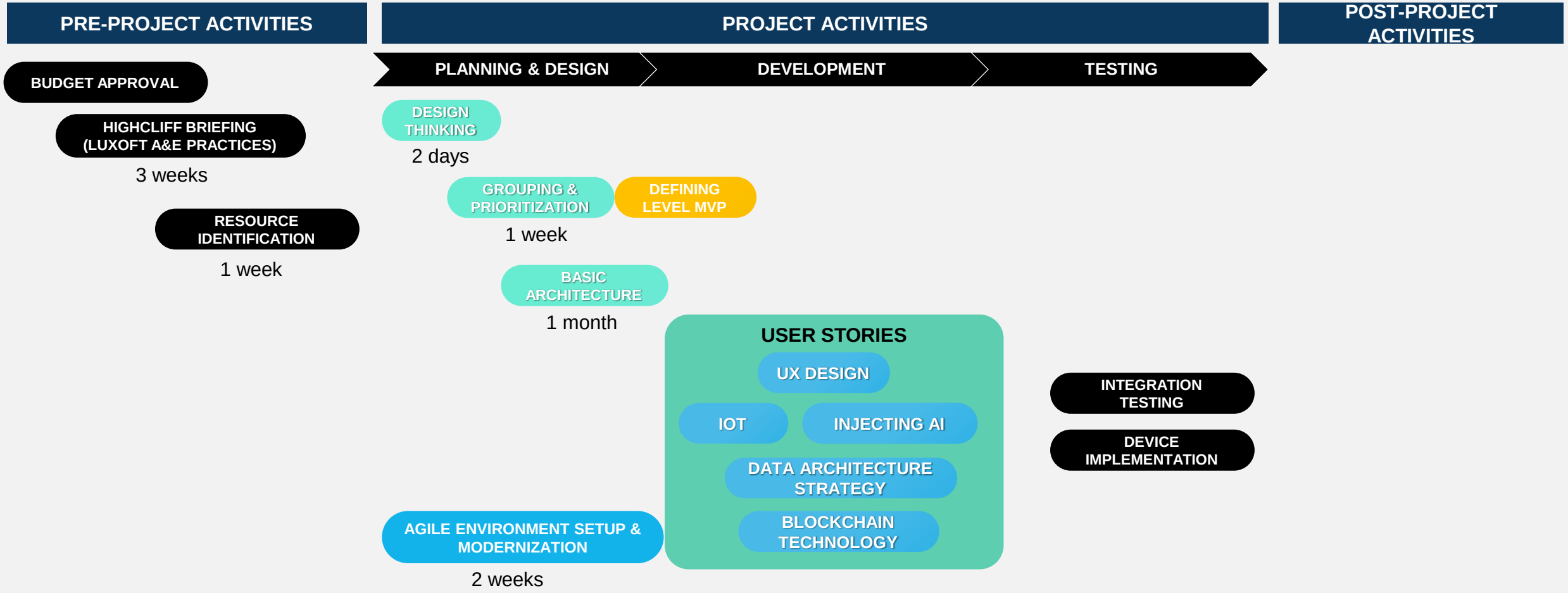

**RISK/CHALLENGE:**

1. HoloLens UAT Testing

**FUTURE WORK (2.0):**

1. Oxygen & Heart Rate Historical data
2. Trilogy integration

# HIGHCLIFF ROADMAP & TIMELINE



| | | | | | |
|---|---|---|---|---|---|
| **Home Levels of Autonomy** | **Electric Home** | **Customized Home** | **Proactive Home** | **Support Home** | **Companion Home** |
| Devices with predetermined functions | ○ | ○ | ○ | ○ | ○ |
| Devices with learning and adaptive capabilities | | ○ | ○ | ○ | ○ |
| Connection to Smart City | | | ○ | ○ | ○ |
| Central AI with the same level of human information processing | | | ○ | ○ | ○ |
| Central AI with superior level of human information processing | | | | ○ | ○ |
| Physical companion | | | | | ○ |
| Human Involvement | High | High | Moderate | Low | Not Required |

# OVERVIEW

## Cyborg Universe 1.0

- Speech Assistant
- Avatar
- Music Player
- Browser
- Email Widget
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- Universe Settings & Customization
- Universe Dynamic Web Control
- Gallery
- AI Art Creator
- Basic Driving
- Autonomous Driving
- Oxygen & Heart Rate Dashboard
- Life Function Critical Alerts

1 year

## Enhancements

- Performance Improvement
- Smarter Reply Suggestions
- Voice Tuned Responses
- Voice Tuned Responses
- Art Blending
- Pre-processing Automation
- Historical Data
- Analytic Solutions

6 months

## Highcliff (Home Automation

- Light & Ambience
- Media Control
- Health Screening
- Cooking Assistant
- Personal Shopper
- Water Control
- Mirror Stylist
- HoloLens Integration
- House Control Dashboard

3 years

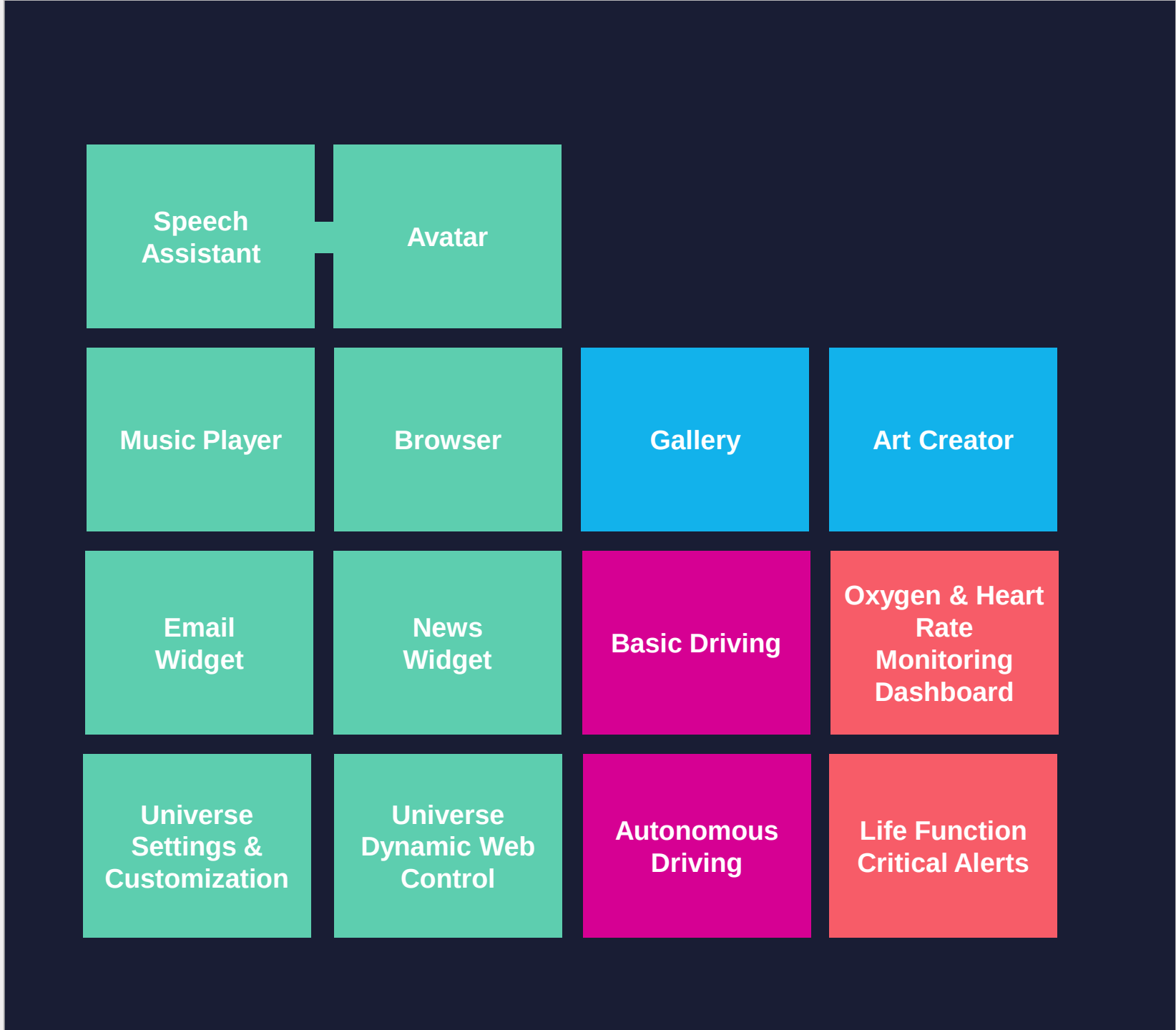
## Cyborg Universe 2.0

- HoloLens Controller
- Robotic Mobility
- Automated Home

4 years

# Cyborg Universe 1.0 Scope & Features

These are the major features that the team are currently building.



# OVERVIEW

**Cyborg Universe 1.0**

1 year

**Enhancements**

6 months

**Highcliff (Home Automation**

3 years

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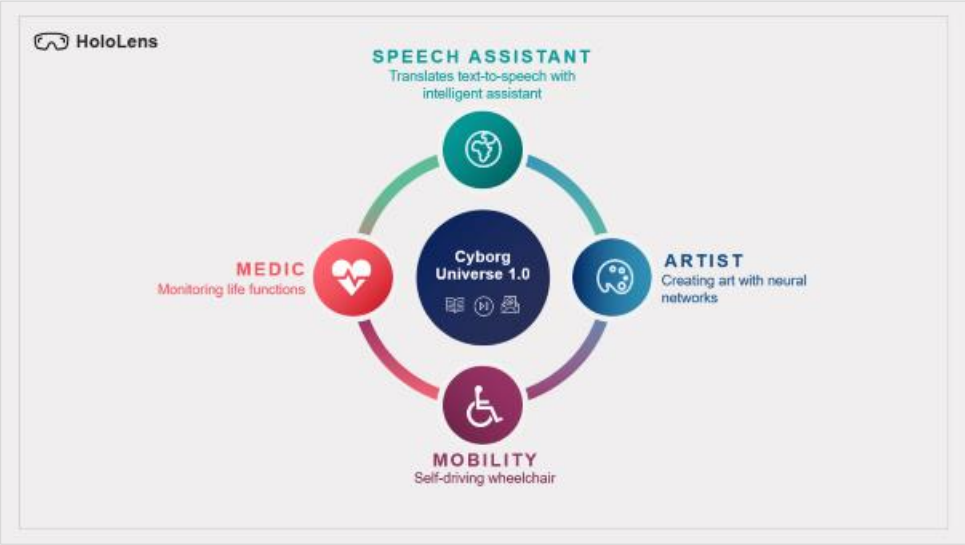
**Cyborg Universe 2.0**

3 years



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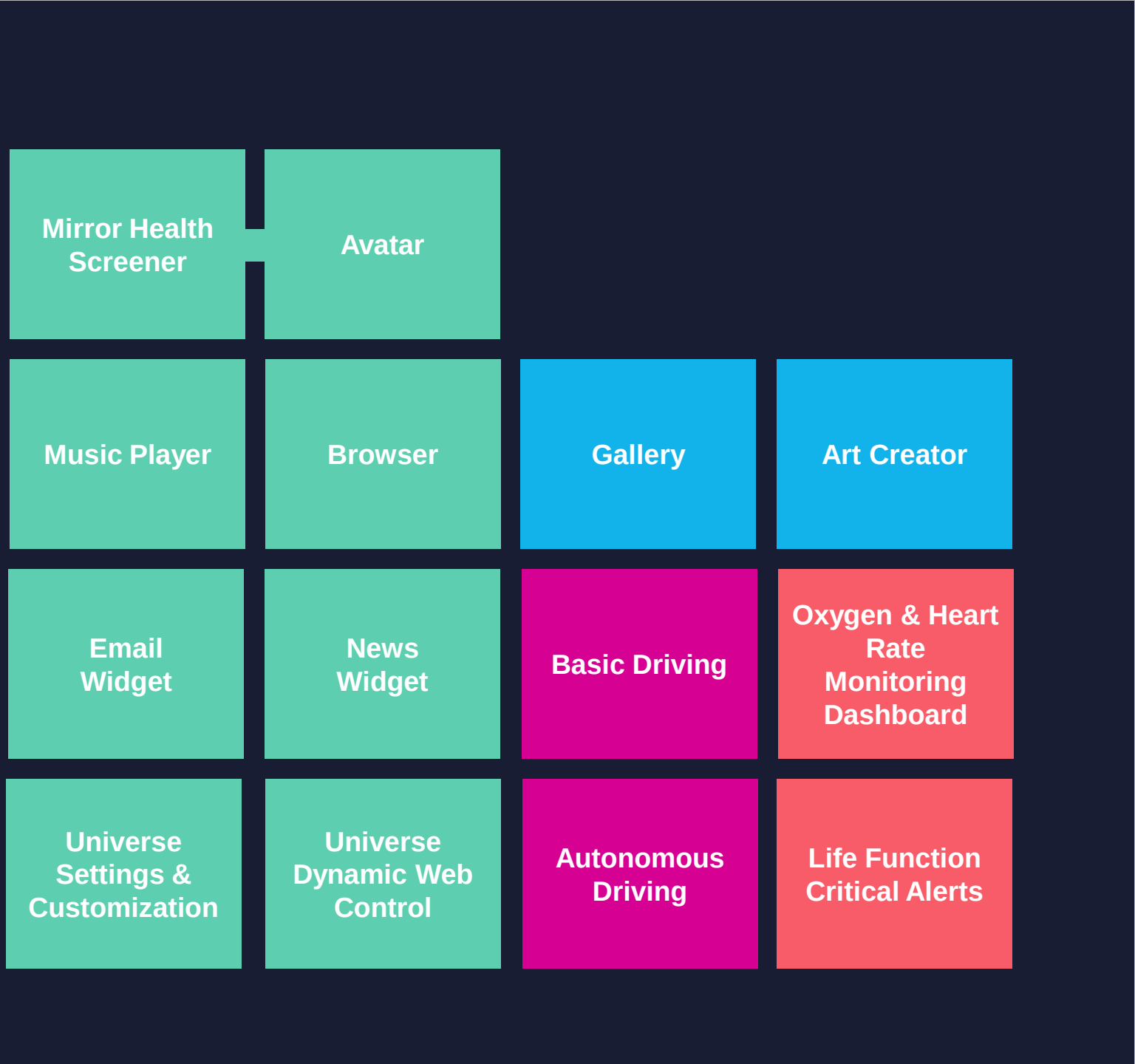


# FUNCTIONAL COMPONENTS

## Universe

- SPEECH ASSISTANT
- CORNER CONTROLS
- SETTINGS
- MUSIC PLAYER
- NEWS WIDGET
- EMAIL WIDGET

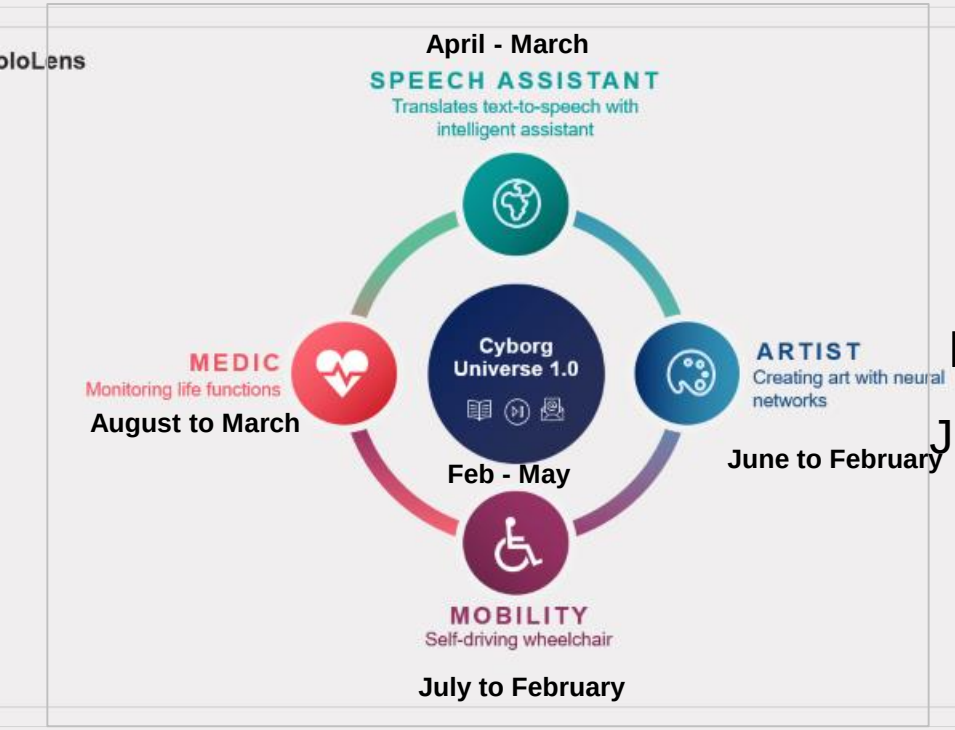
## Artist

- THEME SELECTION
- GALLERY
- COMPOSITION SELECTION
- ART CREATOR PAGE
- CROP PEOPLE
- PHOTOMOSAIC

edic

# OVERVIEW

## Cyborg Universe 1.0




1 year

## Highcliff

July to March

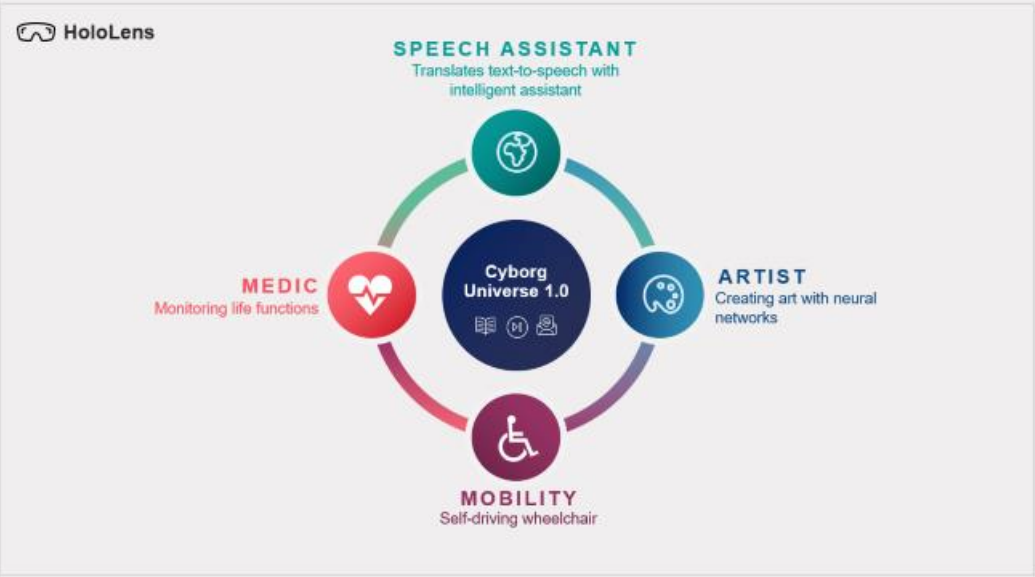
2 years

## Cyborg Universe 2.0

3 years

# OVERVIEW

## Cyborg Universe 1.0




1 year

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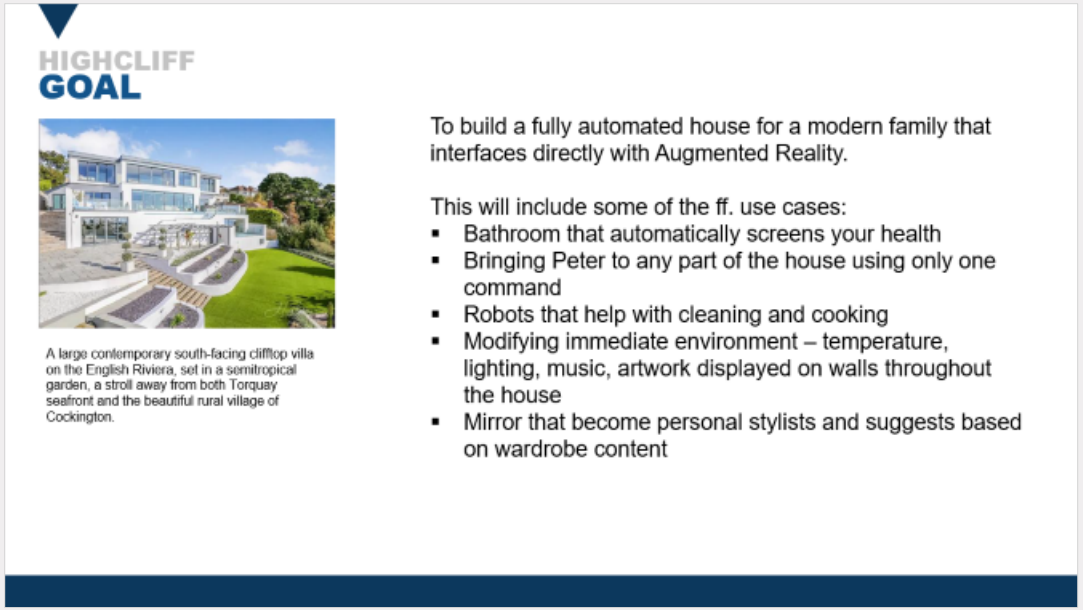
## Highcliff




3 years

## Cyborg Universe 2.0

# CYBORG 1.0 ROADMAP

| End Date | Nov | | Dec | | Jan | | Feb | | March | | | April | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 24 | 8 | 22 | 5 | 19 | 2 | 16 | 2 | 16 | 30 | 13 | 27 |

CORE

- UNIVERSE
- ARTIST
- MOBILITY
- MEDIC

HOLOLENS TESTING

U V W X

**GENERAL CHALLENGES:**

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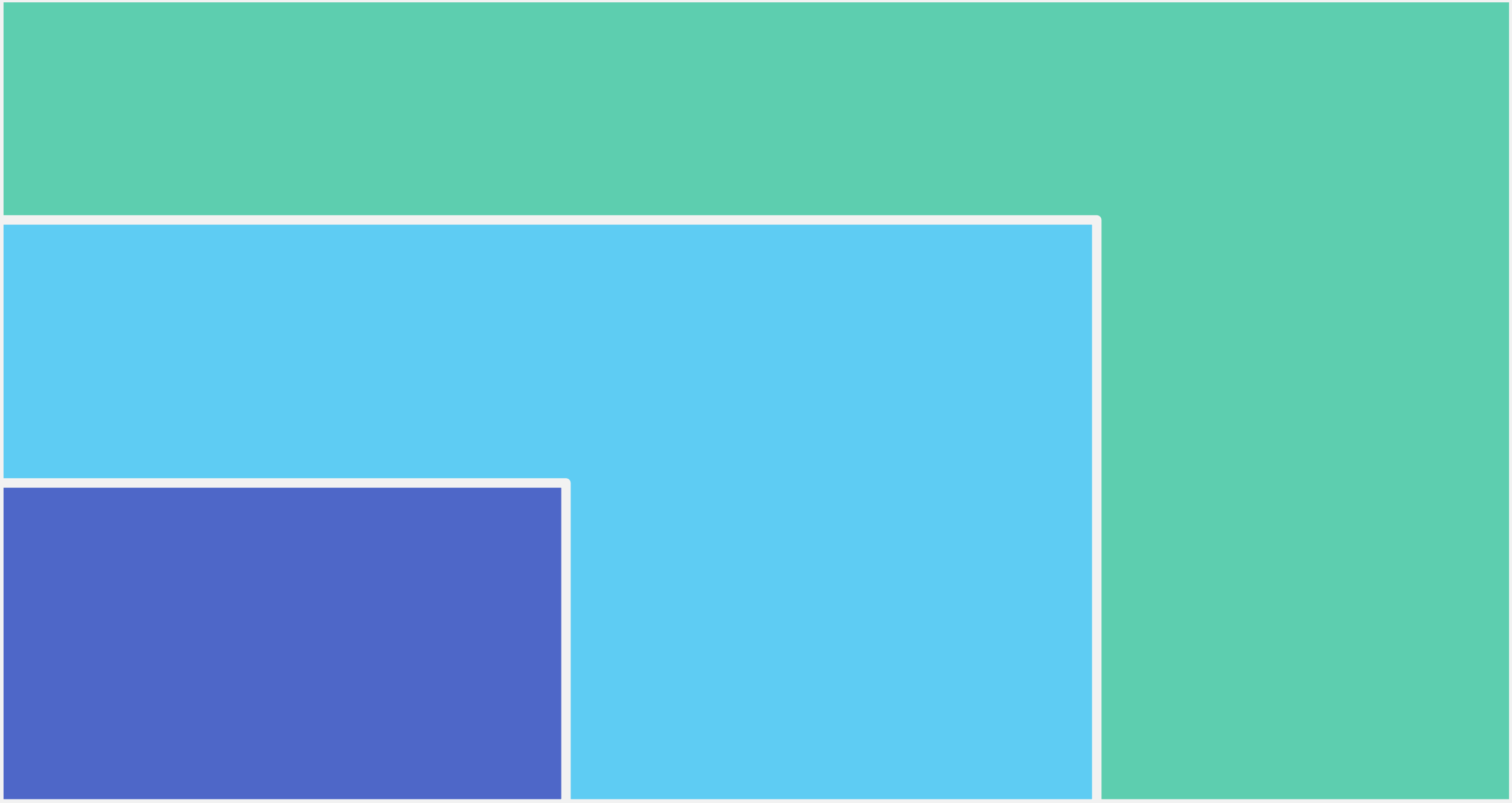
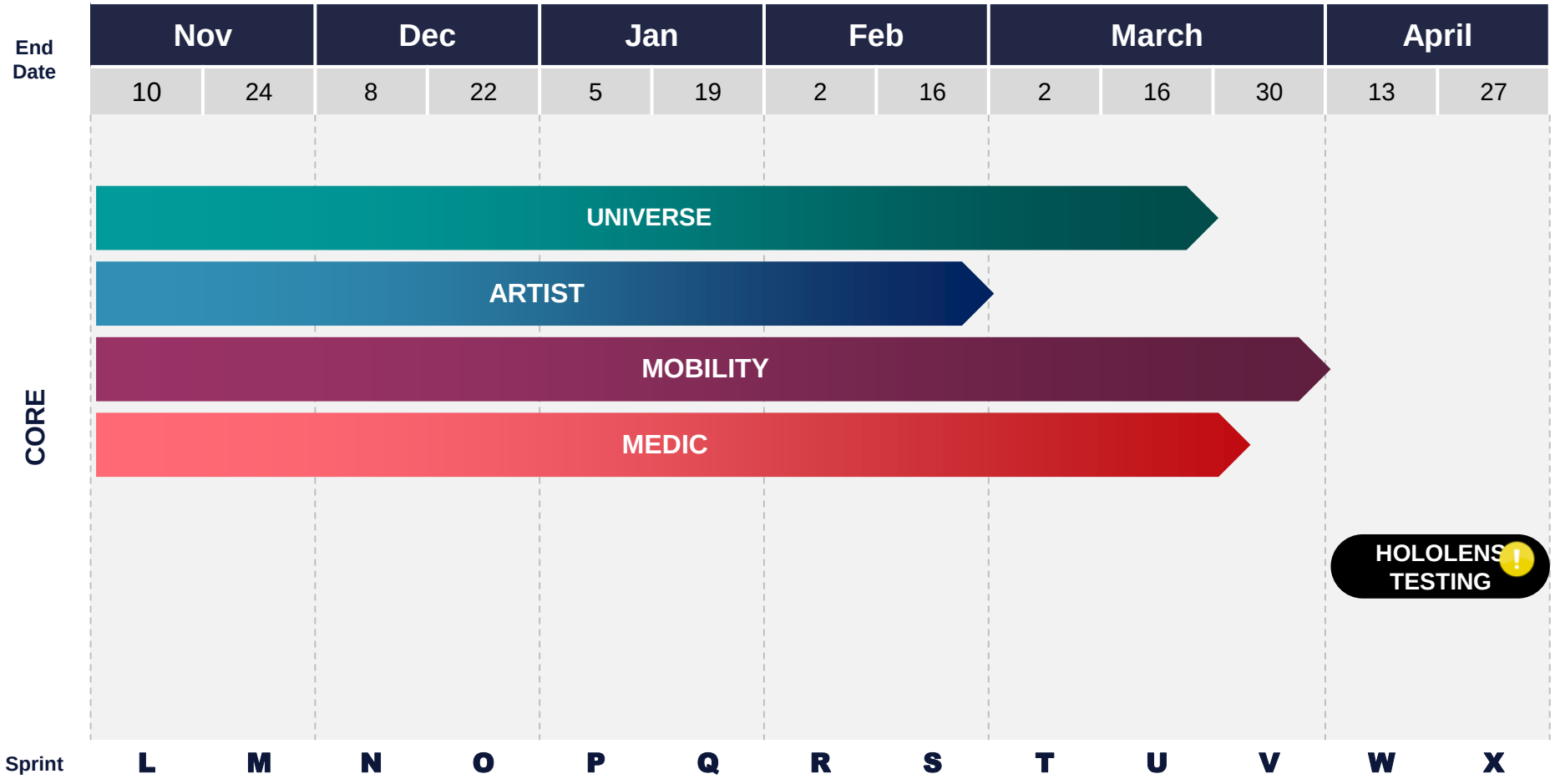

NOW
NEXT
LATER

# CYBORG 1.0 ROADMAP

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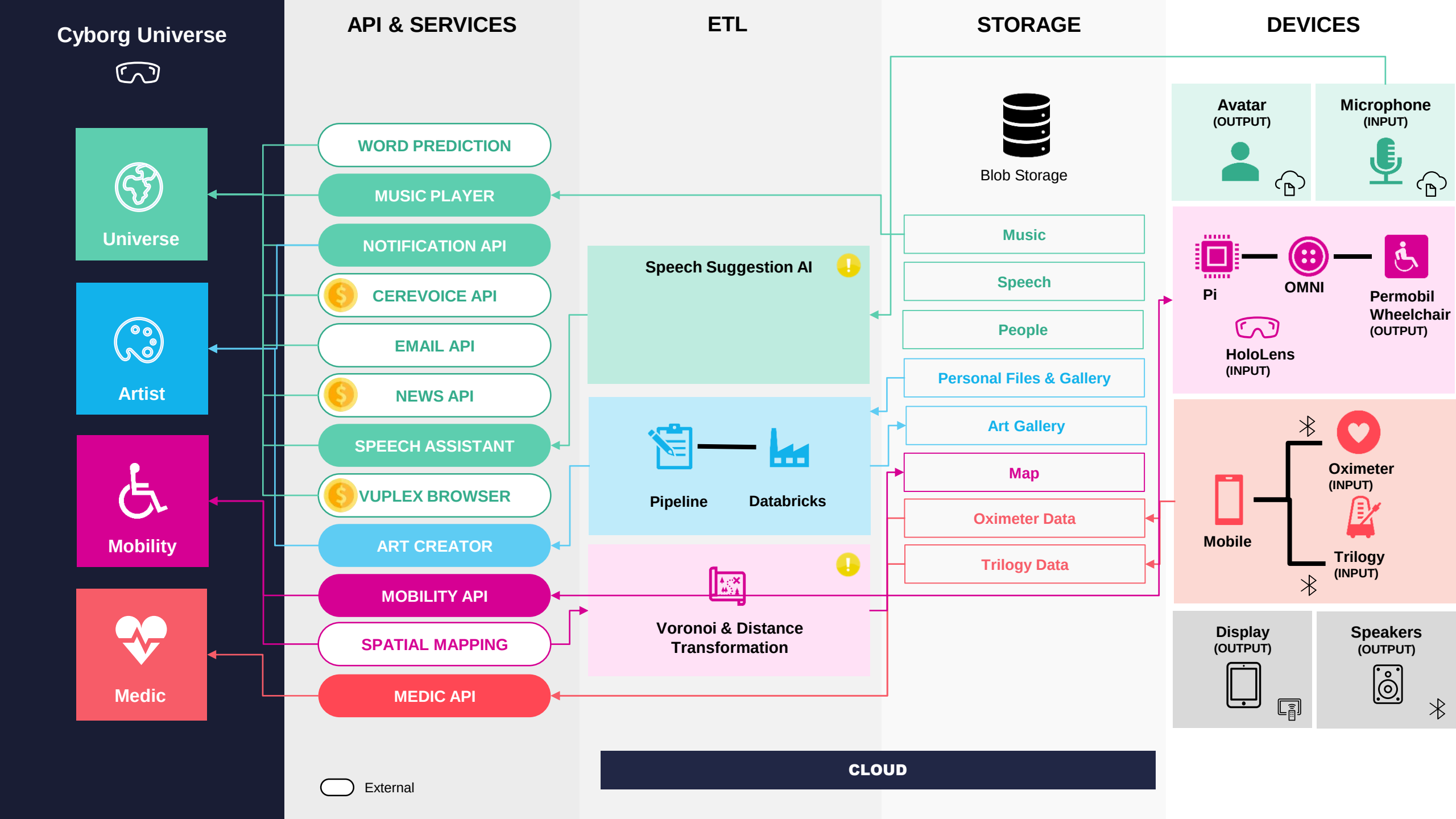
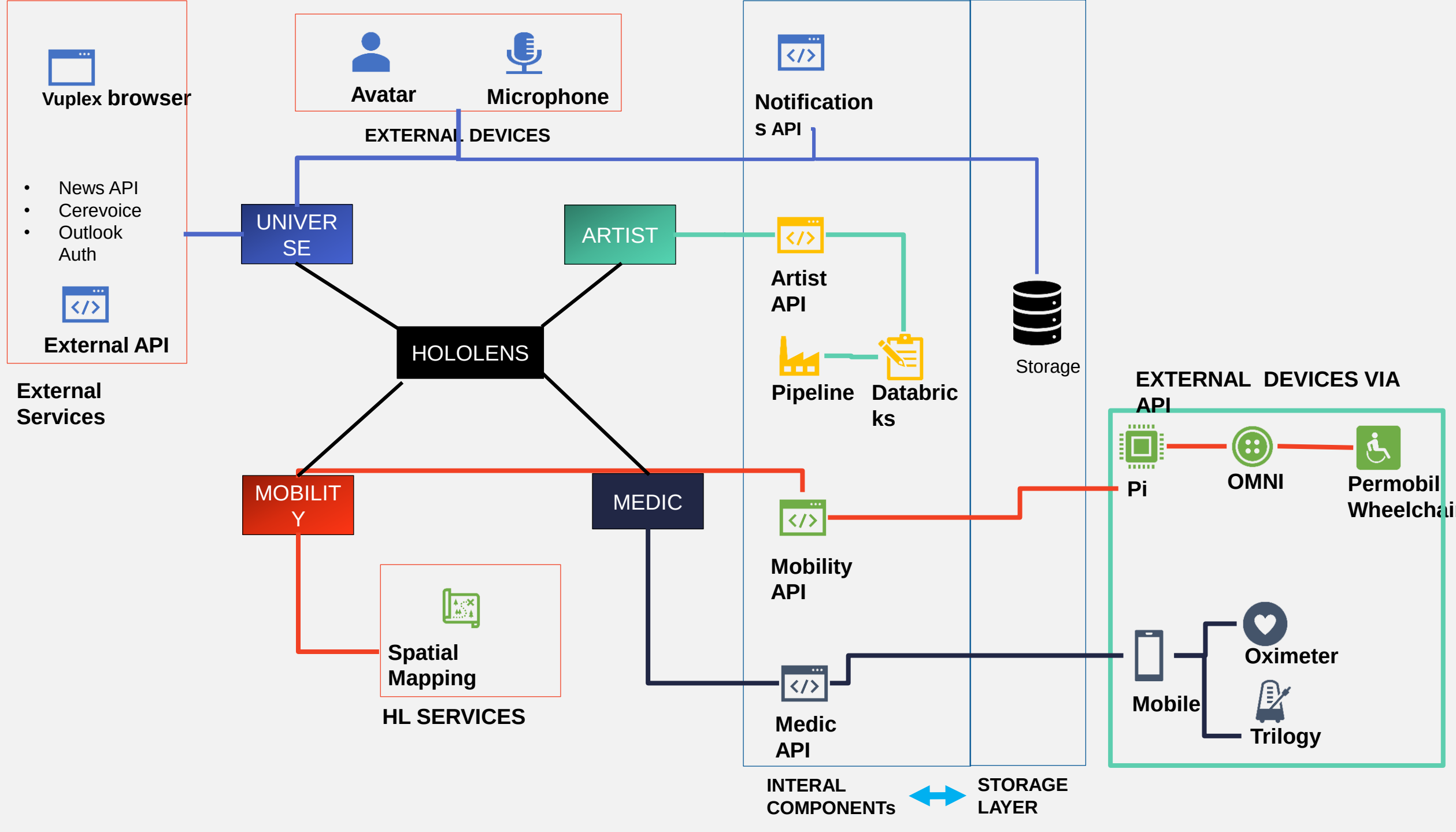

Cyborg Universe
API & SERVICES
ETL
STORAGE
DEVICES
Universe
Artist
Mobility
Medic
WORD PREDICTION
MUSIC PLAYER
NOTIFICATION API
CEREVOICE API
EMAIL API
NEWS API
SPEECH ASSISTANT
VUPLEX BROWSER
ART CREATOR
MOBILITY API
SPATIAL MAPPING
MEDIC API
Speech Suggestion AI
Pipeline
Databricks
Voronoi & Distance Transformation
Blob Storage
Music
Speech
People
Personal Files & Gallery
Art Gallery
Map
Oximeter Data
Trilogy Data
Avatar (OUTPUT)
Microphone (INPUT)
Pi
OMNI
Permobil Wheelchair (OUTPUT)
HoloLens (INPUT)
Mobile
Oximeter (INPUT)
Trilogy (INPUT)
Display (OUTPUT)
Speakers (OUTPUT)
CLOUD
External


Vuplex browser
Avatar
Microphone
EXTERNAL DEVICES
Notification
S API
News API
Cerevoice
Outlook
Auth
External API
External
Services
UNIVER
SE
ARTIST
HOLOLENS
MOBILIT
Y
MEDIC
Artist
API
Pipeline
Databric
ks
Storage
Mobility
API
Medic
API
Spatial
Mapping
HL SERVICES
INTERAL
COMPONENTs
STORAGE
LAYER
EXTERNAL DEVICES VIA
API
Pi
OMNI
Permobil
Wheelchair
Mobile
Oximeter
Trilogy

# FUNCTIONAL COMPONENTS

## Universe

- SPEECH ASSISTANT
- CORNER CONTROLS
- SETTINGS
- MUSIC PLAYER
- NEWS WIDGET
- EMAIL WIDGET

## Artist

- THEME SELECTION
- GALLERY
- COMPOSITION SELECTION
- ART CREATOR PAGE
- CROP PEOPLE
- PHOTOMOSAIC

## Mobility

- MUSIC PLAYER
- NOTIFICATION API
- CEREVOICE API
- EMAIL API
- NEWS API
- SPEECH ASSISTANT

# FUNCTIONAL COMPONENTS

- SPEECH ASSISTANT
- CORNER CONTROLS
- SETTINGS
- MUSIC PLAYER
- NEWS WIDGET
- EMAIL WIDGET

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