Developing an Image -Based Augmented Reality System for Meteo AR

Shiqi Sheng
University of Michigan, Ann Arbor

Nihanth Cherukuru *NCAR*

Tim Scheitlin *NCAR*

Matt Rehme *NCAR*

NCAR

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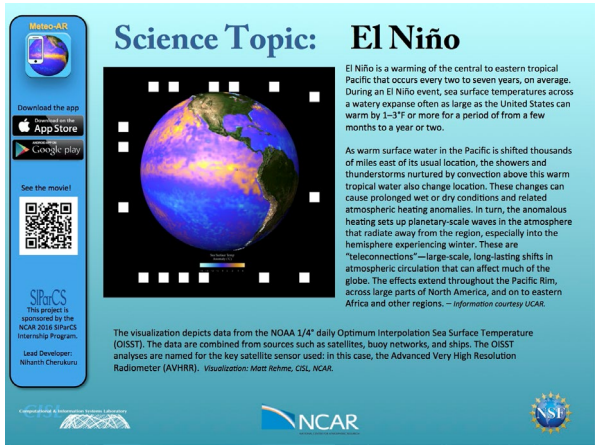
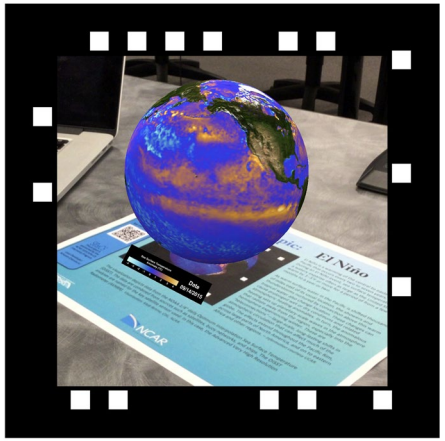
Goal

To implement an Image-Based AR system for Meteo AR, which replaces the pre-existing deprecated Marker-Based AR system.

What is Meteo AR?



How did the Existing AR System Work?



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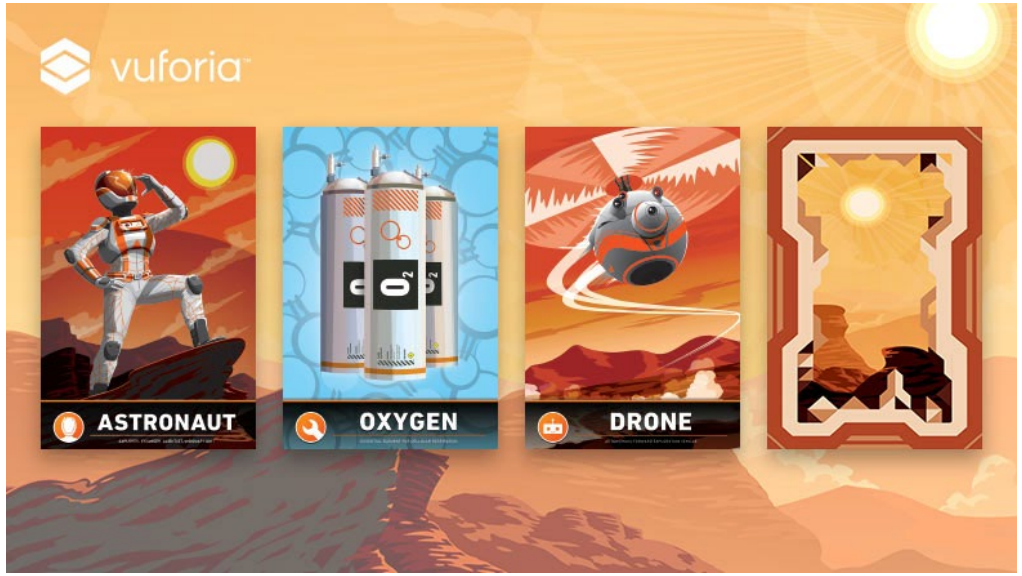
Disadvantages of Frame Markers

- Deprecated in the newer versions of Vuforia, which means that we cannot migrate to the most up-to-date version of Unity while using Frame Markers
- Unable to build in 64-bit which means cannot upload to App Store by 2021
- Theoretical maximum of trackable objects is only 512, which is significantly less than that of the newer Image Targets which allows 1000+
- Less flexibility with the design of science sheets and need to adhere to the markers layout in the margins

Advantages of Image Targets

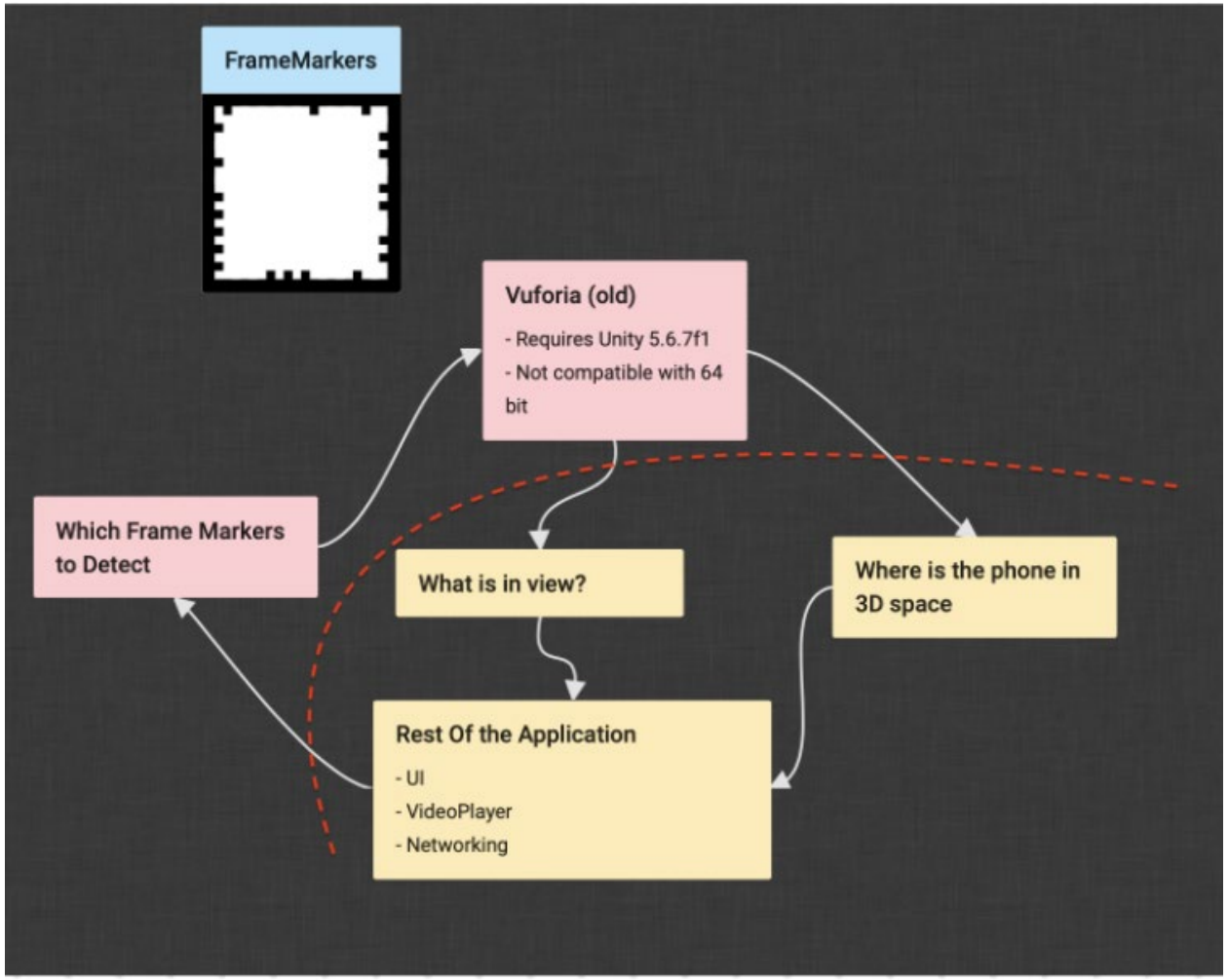
- Image Targets is the AR system supported by the newest versions of Vuforia and Unity
- Theoretical maximum of trackable objects is 1000+, which is significantly more than the 512 trackable objects allowed by Frame Markers
- More flexibility with the design of science sheets and there is no need to create the markers in the margins



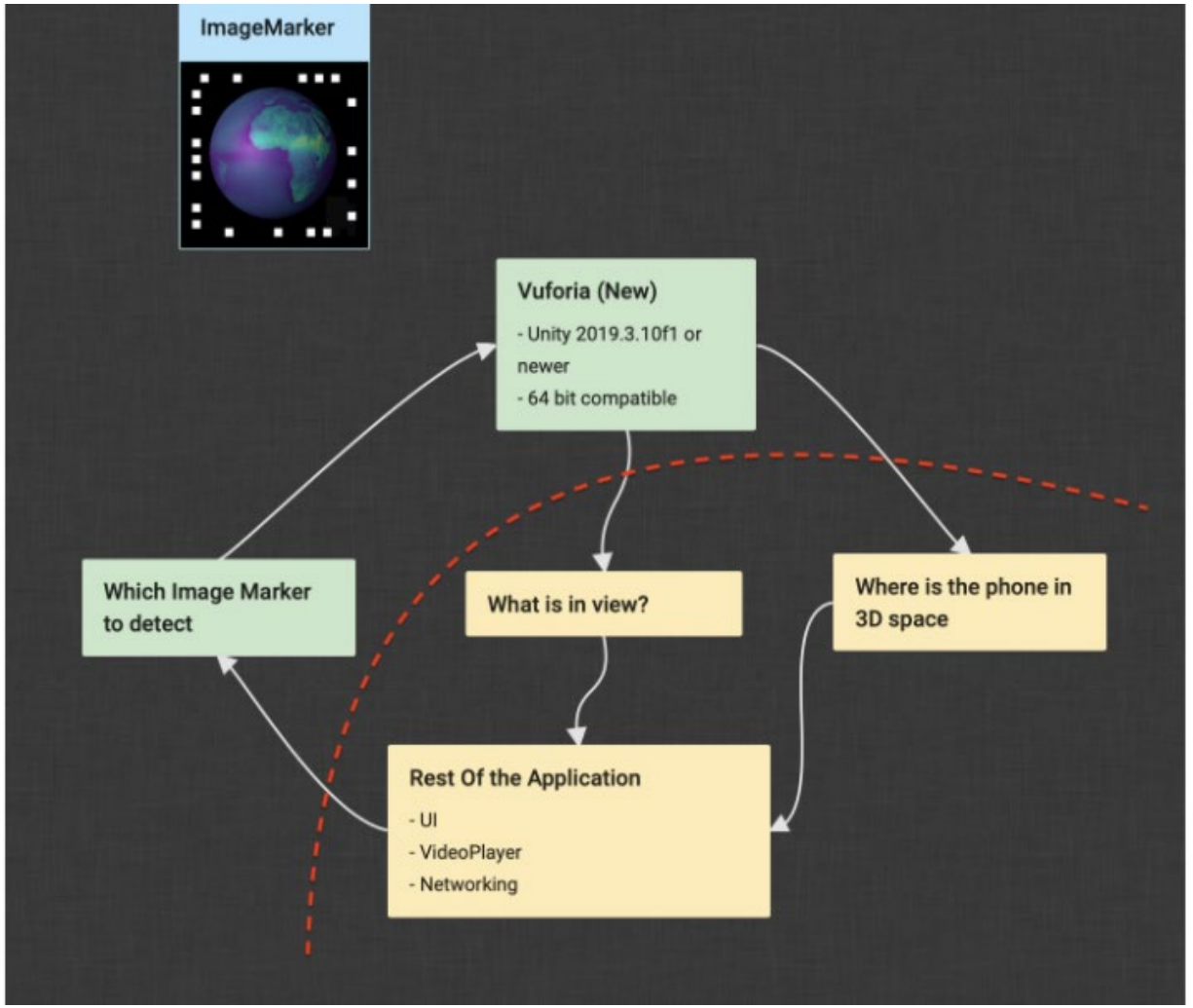
Goals

- Implement the Image Targets Augmented Reality System and remove the existing Frame Markers Augmented Reality System
- Update the version of the Unity Editor used by Meteo AR from Unity 5.6 to Unity 2019
- Maintain all of the existing functionalities of Meteo AR

Implementation Process in Detail

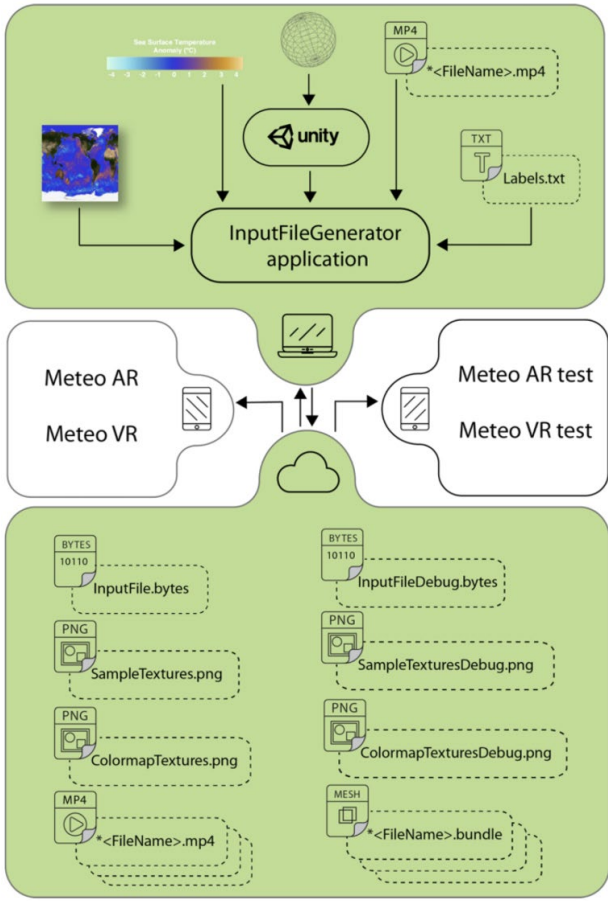


Implementation Process in Detail Continued

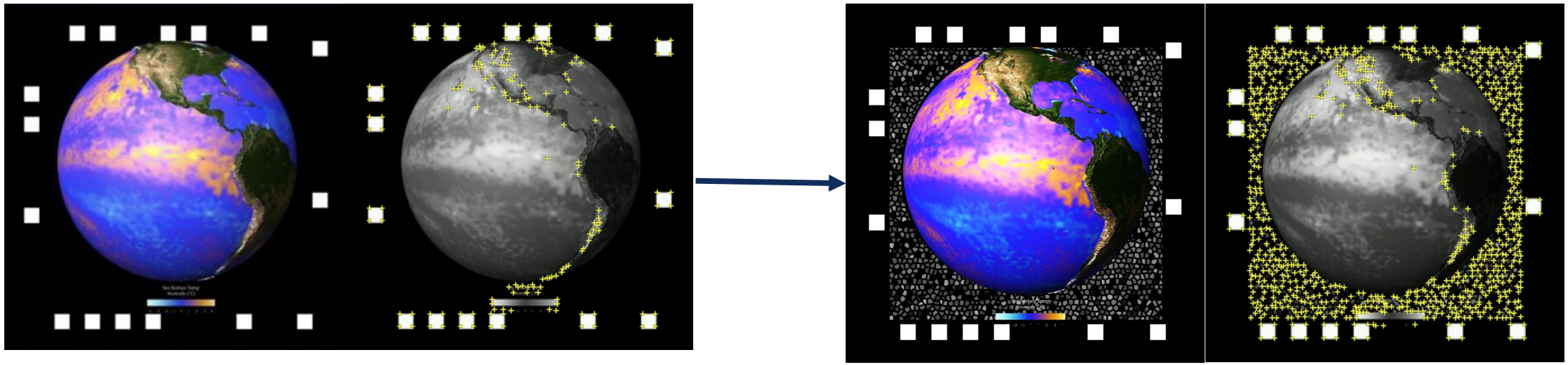


Modifications to the AR System

- Before: Iterate through the database-retrieved object enumerated list and instantiate Frame Markers one by one
- Current: For each object in the enumerated list, search in the Image Targets database by the ID, then instantiate an Image Targets for each object



Changes to the ImageTargets

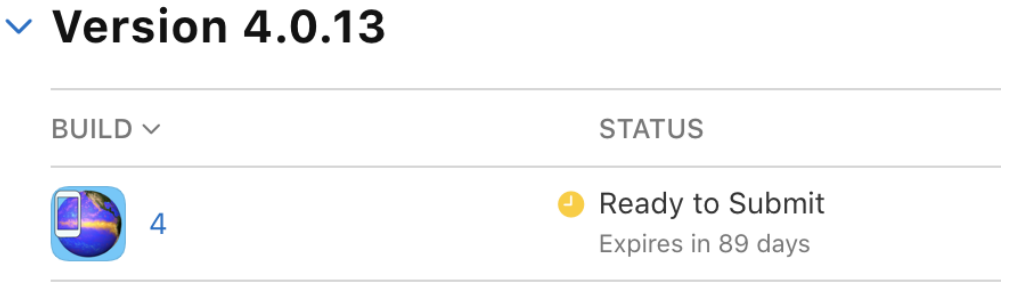


(Markers kept for backwards compatibility)

Results

Met all goals, including

- Image Targets
- Uses Unity 2019
- Maintains all existing functionalities



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Questions?

Shiqi Sheng
ssheng@umich.edu