LangLens:

AR Object Detection and Text Recognition for Language Learning

Team Introduction

Stefan Mihailovic

Team Lead

Sami Tanquary

Architect

Lead Web Developer

Daniel Navarrete
Release Manager

Kyle Young
Customer Communicator
Web Developer

Brian Ruiz
Recorder

CS Faculty Mentor
Italo Santos

What is LangLens?

Have you ever studied a foreign language, and wished for a way to physically interact with or experience the very words you were learning?

With the emergence of AR, **you absolutely can!**

Imagine as you're learning a new language and you can see the item, or select it from an augmented reality shelf, interact with it, or even better, look around your surroundings, point at any object you can see, read and hear its name in the language you are learning!
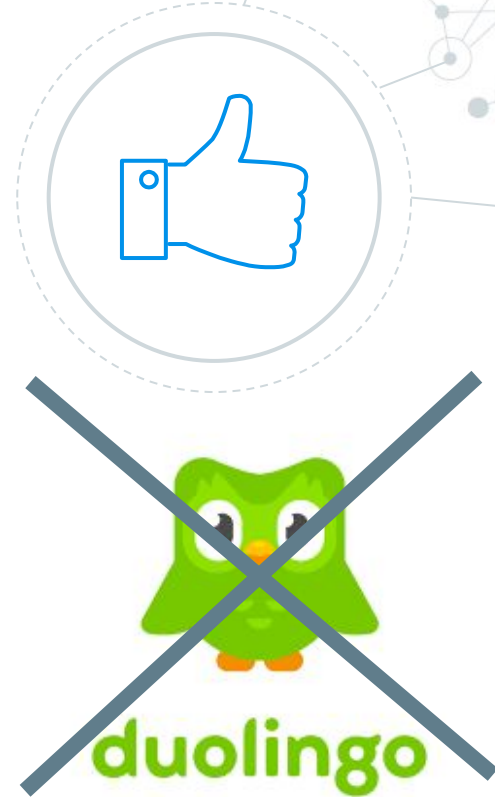
Our client

Dr. Okim Kang

◎ Professor within the Department of English at Northern Arizona University

◎ Teaches classes on applied linguistics.

◎ She has worked on developing systems and apps dedicated to linguistics in the past.

Problem Explanation

Lack of mobile tools for foreign language learners that utilize the recent advances in AR technology.
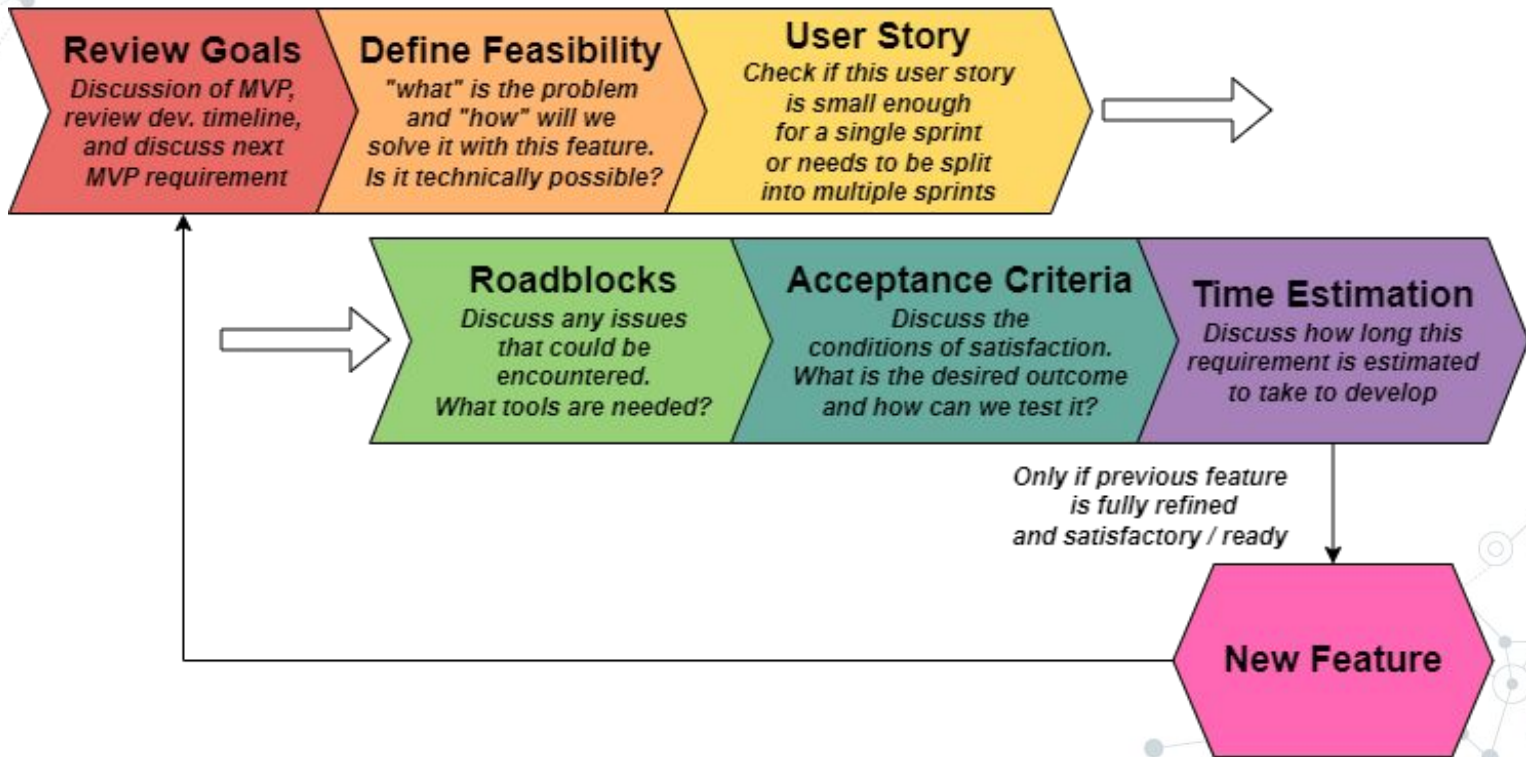
Proposed Solution

◎ A web-based mobile application that opens the user camera in live mode.

◎ Trigger either object detection or text recognition mode.

◎ Identify chosen object or word with a clickable link to a word learning page with a web-sources definition, image, and audio example

◎ Have an option to "save" object or word into your personal AR shelf.

◎ Eventually have a way to practice saved words to learn them.

Plan for development
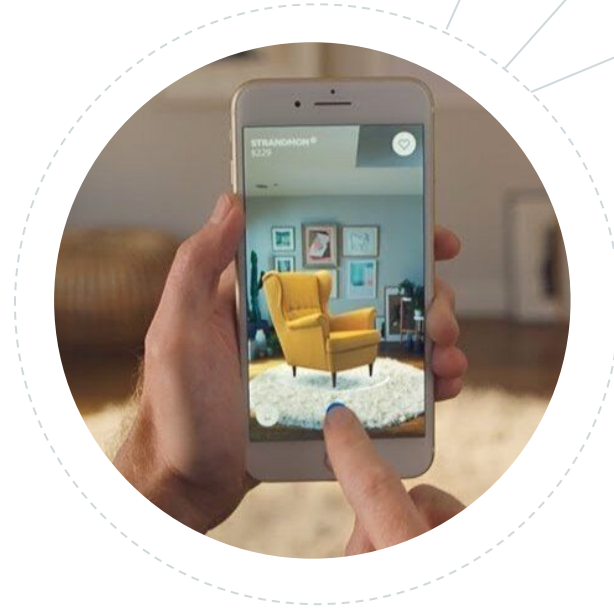
Requirement Acquisition Plan - Weekly Team Meetings

Review Goals
Discussion of MVP, review dev. timeline, and discuss next MVP requirement

Define Feasibility
"what" is the problem and "how" will we solve it with this feature. Is it technically possible?

User Story
Check if this user story is small enough for a single sprint or needs to be split into multiple sprints

Roadblocks
Discuss any issues that could be encountered. What tools are needed?

Acceptance Criteria
Discuss the conditions of satisfaction. What is the desired outcome and how can we test it?

Time Estimation
Discuss how long this requirement is estimated to take to develop

Only if previous feature is fully refined and satisfactory / ready

New Feature

Technical Investigation

◎ Finding a good object detection library, and learning how to implement it into an AR app.
   ○ VisionLib, ObjectTron
◎ Developing database or something similar to store essentially the entire dictionary.
   ○ php, SQL
◎ Continuous camera usage in the user's FOV to detect objects or texts with a graphical representation of the language being learn tagged to it in AR.
   ○ Unity

Main Goal

- Free niche AR tool
- Targeted to learners
- Provide immersive and interactive experience

Questions or Comments?