

Development Plan

Software Engineering

Team 15, ASLingo
Andrew Kil
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Table 1: Revision History

Date	Developer(s)	Change
September 22, 2023	Stanley Chan	Proposed proof of concept demonstration plan
September 22, 2023	Andrew Kil	Proposed workflow plan
September 22, 2023	Edward Zhuang	Proposed some initial stage technology suggestions
September 22, 2023	Everyone	Finished the remainder of the Dev Plan
September 22, 2023	Edward Zhuang	Edited the Dev Plan for deliverable submission
November 13, 2023	Edward Zhuang	Updated the Proof of Concept section to match our presentation
April 3, 2024	Cassidy Baldin	Updated tools/technology used

1 Team Meeting Plan

As a baseline, when there is no lecture or tutorial for this course, all group members should aim to meet together. Meetings should occur at least once a week. For additional meetings, members will use the When2Meet schedule planner to determine an ideal time slot for meetings. Team meetings should always try to accommodate all members and will occur over voice call using the Discord platform, unless otherwise specified.

Table 2: Team Roles

Name	Primary Responsibilities
Andrew Kil	UI/UX, testing, computer vision
Cassidy Baldin	Frontend, backend
Edward Zhuang	Backend, computer vision
Jeremy Langner	Frontend, backend
Stanley Chan	Frontend, computer vision

2 Team Communication Plan

Team communications will primarily be carried out using Discord or during in-person lecture meetings. Communication regarding project issues is encouraged to be done using GitHub issues, so that comments are directly attached to the code they concern. Communications with any supervisors, stakeholders, TAs, or instructors will be carried out with email and all team members should be added to the CC list.

3 Team Member Roles

All members will be responsible in some part for documentation, general development, testing, code review, and stakeholder outreach.

4 Workflow Plan

GitHub will be used to manage the project. The general structure of development will be as follows: Development branches called "Milestone Branches" will be opened at the start of a new deliverable. All members must then ensure that they are up to date on all the latest documents before syncing to the Milestone Branch. Once synced, members will work on that branch until that Milestone is reached. Final tests will occur to ensure no unintended errors, and after a group agreement, the Milestone Branch will be merged into main. When being merged, it must be done so with a comment on the changes made, and pushed so that all members can see the new documentation.

The GitHub Issues tracking feature will be used for all issue management as well as for keeping track of the current state of work. Issues will be raised via this feature whenever anything of concern occurs, e.g. bugs. All future issues with the same classification will work off this template.

5 Proof of Concept Demonstration Plan

One significant risk we have identified pertains to the accuracy and reliability of the computer vision aspect of this application. As this is the primary func-

tionality for this application, it is necessary that our system should demonstrate the capability to detect and recognize complex hand signs and motions. One way we could validate our ability to mitigate this risk would be to prove that we can build a system that can accurately recognize the first few letters of the American Sign Language alphabet.

We also plan to demonstrate a working prototype for the web app. For the web app, we want to demonstrate the functionality of a component which contains exercises that can be verified as correct or incorrect.

6 Technology

- Frontend languages: JavaScript, Typescript, CSS
- Backend languages: Python
- Frontend libraries: React (JavaScript), React Router (JavaScript), Redux (JavaScript), Bootstrap (CSS)
- Backend libraries: Flask (Python)
- Computer vision libraries: OpenCV (Python), pandas (Python), NumPy (Python)
- Unit testing: Pytest (Python)
- Code coverage: Istanbul (JavaScript), Coverage.py (Python)
- Linters: Flake8 (Python), ESLint (Javascript, Typescript)
- Continuous integration and branch protection: GitHub Actions
- Other software tools: Git, Overleaf, VSCode
- Hardware tools: A camera (live video capture)

7 Coding Standard

Coding standards will be language specific, with all Python code being upheld to the PEP 8 style guide and all JavaScript code being upheld to Airbnb's style guide.

8 Project Scheduling

Refer to the schedule within the course outline. In general, we will aim to stay ahead by one deliverable. The course outline can be found [here](#).