Eye tracking for simulation assessment

Team 11

Maintenance Manual

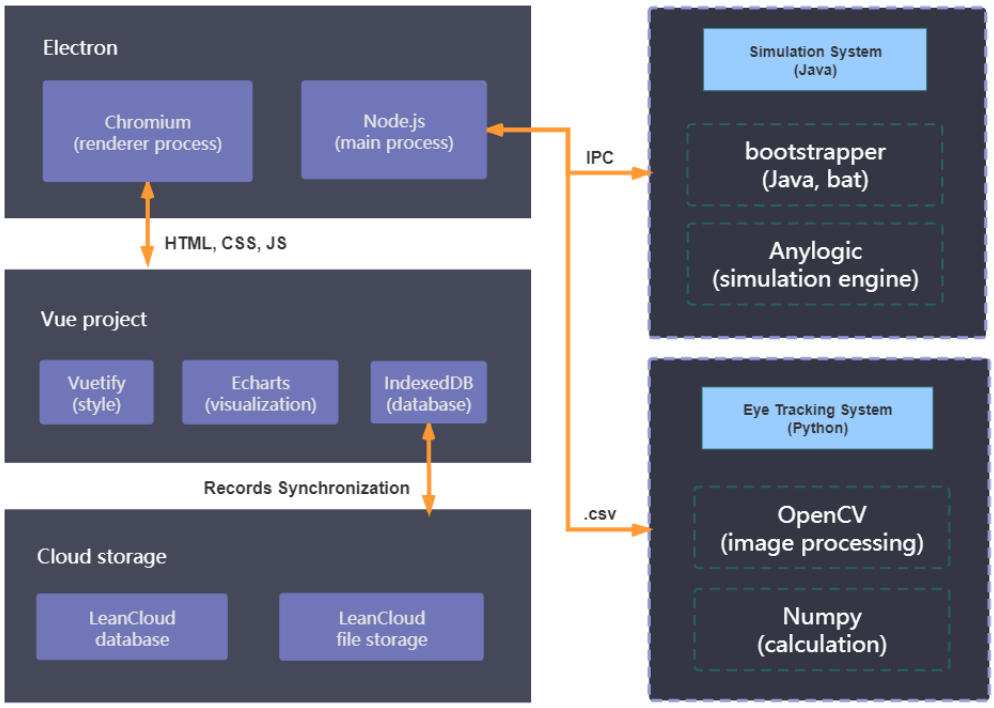
2021.4

1. Introduction

- **Purpose**
  - This maintenance manual is the basis of the software maintenance.
- **For whom is this manual written**
  - System maintenance personnel.
  - People who will modify or maintain the software on top of it.
- **Background**
  - Our supervisor **Chris RoadKnight** proposed this project.
  - The developers are the members of Team11, who are Chenming Liu, Chenglei You, Shuguang Lyu, Xiaoqing Wang, Meitong Wang and Sijin Wang.
  - The users can be anyone, and those interested in simulation are better.
  - Use place: assess the quality of simulation.
- **Premises and Assumptions**
  - This manual serves as a basic tutorial, and there are no special requirements for users.

2. System overview

- System uses
  - Assess simulations by tracking the movements of users' gaze point.
- System security
  - Users' data is stored in the cloud storage, which can only be accessed by developers.
- General information
  - **Frontend part**
    - For the frontend part of this application, Electron is extensively used as a basic container that holds all HTML, CSS, and Javascript codes inside a Chromium core.



    - **Simulation part**
        - For simulation part, the Java code is exported by AnyLogic. Therefore, the simulations can run by launching the batch files. If you are using Mac OS, you can modify the suffix of the file name of simulation from ".bat" to "_mac" in "SimulationLauncher.java" and recompile the Java file.
    - **Eye tracking part**
        - For eye tracking part, the python script can be executed by Java code.
- Program information
    - The detail of frontend part:
        - Function: show all interfaces and finish interacting.
        - Interface: Upload, Download, Query, Command Line to execute Java code, File Upload, File Download.
    - The detail of integration part:
        - Function: integrate different parts.
        - Interface: Command Line to execute Python Script, Command Line to run batch file.
    - The detail of eye tracking part:
        - Function: open camera to track users' eyes.
        - Interface: none.
    - The detail of cloud storage:
        - Function: database, file storage.
        - Interface: none.

3. The operating environment

- Equipment: Camera within the computer or external infrared camera (USB).
- Database:
    - Feature: Object Oriented
    - Content: Watching history, User account information, CSV files of eye tracking part.
    - Structure and detailed information:
        - User Table
            - Field: ID, Email, password, session token, user name, create date
        - Eye Tracking Table:
            - Field: ID, Calculated Score, Date, Simulation Name, User ID, User Score, Visulisation (csv file), create date

4. Maintenance process

- Convention
    - The annotation format:
        - Python

          """

          Introduction:

          Arguments:

          """
        - Java

          /**

          Description:

          Arguments:

          Return:

          (Throws:)

          */
        - JavaScript

          /**

          Description:

          Arguments:

          Return:

          (Throws:)

          */
    - Function naming convention:
        - Python: Snake Case -> https://en.wikipedia.org/wiki/Snake_case

        - Java: Upper Camel Case -> https://en.wikipedia.org/wiki/Camel_case
        - JavaScript: Camel Case -> https://en.wikipedia.org/wiki/Camel_case
    - Variable naming convention:
        - Meaningful words
- The validation process
    - If some codes are modified, please run the tests before or write new tests to test new codes. Make sure all tests can pass.
- Other maintenance requirements
    - If new developers want to modify or maintain this software, please contact initial developers and get the account of Backend As Service.
    - You can update dependencies of node_modules, but we do not recommend that. Because there exists potential risks.