**# project Documentation**

**## Project Overview**

The Web App project is developed by Hanyang Liu and Bowen Liu. The Object of this project is to develop a web app that allows user to control and monitor the exploration of the robot, record the explore outcome and display them in a clear manner.

**## Front End**

**### Feature**

when designing the front end, we take the following aspect into consideration:

1. User Friendly: we carefully consider the basic need of our user and design the page that is logical and clear.

2. Graphical Display: A lot of data will be generated when robot is running. we introduce bar charts, real time video for user to easily see the outcome.

3. Good appearance: the web page should match the high-tech image of intelligent robot.

**### Process**

before development we have discussion with users and brainstormed the possible way of designing.

during development our team of 2 people keeps a high frequency of communication.

after the prototype is done we examine it and adjust it over and over again.

**### Outcome**

Several JSP base web page that support the function of "Start Explore", "Check User Record","Check Record Detail","Check User".

**## Back End**

**### Aim**

when designing the back end, we want to guarantee the following aspect.

Data integrity: Ensure data integrity, including entity integrity, referential integrity, and domain integrity. Entity integrity requires that each entity has a unique identity, referential integrity requires that foreign key associated data exists, and domain integrity requires that data conform to predefined rules.

Data consistency: Ensure data consistency in the database, that is, data update, insert, and delete operations can be correctly reflected in the database, avoiding data redundancy and inconsistency.

Data security: Ensure the security of data, including the protection of sensitive data, rights management, data encryption and other measures to prevent unauthorized access and data disclosure.

**### Process**

at the first stage, after communication with team members of other major, we carefully listed all the information that could be generated.

at the second stage, we draw an EER diagram of the database based on the outcome of the first stage.

at the third stage, we put our hand to the interaction between the web page and the database. the service logic of web App is implemented as well.

at the fourth stage, we worked on build bridge between robot and our web App.

**### Outcome**

a SQL Database that can store all the information generated during the explore process.

Java based Implementation of servlets that can process the command from front end and process data correctly .