**SRS DOCUMENT**

**1. Introduction**

The objective of this SRS document is to specify the requirements for the development of a web application that allows for 3D data rendering of an area using the height of buildings as the third dimension. The web application should be able to load the esri ArcGIS.Shp file of the area and provide a module for rendering and rotating the 3D data over X, Y, and Z axis.

**2. Scope**

The scope of this project is to design and develop a web application that can display 3D data of an area in 2D and 3D formats. The application should be able to load the esri ArcGIS.Shp file of the area and use the height of the buildings to create a 3D model of the area. Users should be able to view the 3D model of the area in a web browser and interact with the model by rotating it over the X, Y, and Z axis.

**3. Functional Requirements**

The following functional requirements must be met by the web application:

a) The web application must be able to read the esri ArcGIS.Shp file of the area.

b) The application must be able to load the data on the web in 2D and 3D formats.

c) The height of buildings in the area must be used as the third dimension in the 3D model.

d) The application must provide a module for rendering and rotating the 3D data over X, Y, and Z axis.

**4. Non-Functional Requirements**

The following non-functional requirements must be met by the web application:

a) The application must be responsive and able to load the 3D data quickly.

b) The application should be compatible with all modern web browsers.

c) The application must be secure and protect user data from unauthorized access.

d) The application should have a user-friendly interface that is easy to use and navigate.

e) The 3D model should be visually appealing and provide a clear and accurate representation of the area.

**5. Use Cases**

The following use cases should be supported by the web application:

a) The user loads the esri Ar16-02-2023cGIS.Shp file of the area.

b) The user views the 3D model of the area in a web browser.

c) The user interacts with the 3D model by rotating it over X, Y, and Z axis.

**6. Assumptions**

The following assumptions are made regarding the development of the web application:

a) The esri ArcGIS.Shp file of the area is available and can be read by the web application.

b) The height of buildings in the area is accurately represented in the esri ArcGIS.Shp file.

c) The web application will be hosted on a server that can handle the 3D rendering and data processing requirements.

**7. Constraints**

The following constraints apply to the development of the web application:

a) The development of the web application must adhere to the timeline and budget constraints set by the project stakeholders.

b) The web application must be compatible with modern web browsers and accessible to a wide range of users.

c) The web application must be written in Python only, and no other programming language can be used.

**8. Acceptance Criteria**

The following acceptance criteria must be met before the web application can be considered complete:

a) The web application can read the esri ArcGIS.Shp file of the area and load the data on the web in 2D and 3D formats.

b) The height of buildings in the area is accurately represented in the 3D model.

c) The web application provides a module for rendering and rotating the 3D data over X, Y