GitHub link: <https://github.com/Dinosauce/397-Game-Engine>

Issues faced and how they were resolved:

* Time management
  + Our time management was poorly handled and this issue was not resolved effectively resulting in an incomplete project. The group can only learn from the mistake and set aside a larger amount of time for assignment 2. The group can stay on top of tasks through regular meetings and efficient delegation of tasks.
* Model loader
  + There was a lot of initial issues with getting our model loader to function, taking considerably longer than expected. This issue was solved through using the tutors knowledge and experience to help complete the model loader. However, textures cannot be loaded.
* Movement
  + The movement of the camera was unpredictable depending on the machine that the project was being used on. Resulting in differences in speed. This problem was solved by confining movement based on a time value so that the camera could not move faster if one computer had a faster frame rate than another.
  + However, sometimes the values of camera variables may cause to floating point overflow issue. The PCs in ECL works fine for both movement and rotation, but in some laptops and PCs may break the camera position by moving (rotation is fine).
* Particle effects
  + The particles can only spawn under the starting position. Can be solved after re-structure the class, to set the position.

Incomplete:

* 3D Texture Loader and lighting
  + The team was able to load textures but cannot show into the game or get lighting to work in the world due to time constraints and understanding of the technical requirements
* Controls in menu
  + Due to time limitation, menus can be shown, but without mouse clicking in main menu. The only way to exit the game is to press x to see the credit, and press x again to quit.
* Collusion detection
  + Due to the time limit, the team was unable to debug and implement the collusion detection feature to the game. However, it wrote and will try to implement in next assignment

Special features

* Player movement
  + The players are able to seamlessly maneuver throughout the game world through the use of the ‘wasd’ keys. They are also able to move the camera through mouse movements.
* Particle effects
  + Particles are able to be generated within the world to provide a greater realism and simulate some effects such as fire and smoke.
  + To create this effect a large number of particles are generated with positions, velocities and colours. Upon update the program loops through the particle array updating the particle. The update affects the position is updated based upon its velocity and the effect of gravity, if any.
* Physics engine/ collision detection
* Graphics engine (currently support only OpenGL)
* Model loader

User Manual(probably to be put into a text document)

* Unzip file
* Using visual studio 2013 open the visual studio solution ICT397\_Assignment
* The libraries must then be linked to do this right click the project and select properties.
* Under Configuration Properties click VC ++ Directories
* Edit the include directory such that it links to the file include
* Edit the library directory such that it links to the file lib
* Build solution and run

The software requires the use of openGL, SDL and glm, which should come packaged with the project.