

I'm Rubén Sardón and was the team lead for Juicy Code's Square Up. As part of my responsibilities I was in charge of scheduling and documenting meetings, organizing tasks and managing teamwork using Discord, Hacknplan and Google Drive's tools. All of us took part in deciding and designing the game and its features and together with my role's duties I mainly worked programming the engine's back-end systems:

Work log:

- Added C++ Libraries: **SDL2** (window management and rendering), **SDL\_Mixer** (audio), **SDL\_TTF** (fonts), **PhysFS** (file system), **pugixml** (.xml parser), and **mmgr** (memory leaks).
- Built **rendering pipeline** to draw sprites using layers, gradually update Fog of War texture for Minimap and apply camera frustum culling to the scene.
- Set **window** resolution and fullscreen controls. Rendering viewport adapts to window size or can preserve a target aspect ratio.
- Set an **event system** that allows sending events to any given listener. Data is held using CVars, variables that adapt to the given data type.
- Added **time management** for fps control and scene playing and pausing. Spare time between frames pulls queued events and updates pathfinding.
- Setup **file system** using PhysFS to read and load all assets: map, textures, fonts, and audio samples from a compressed folder.
- Built an **importer** for each resource type and serialized module configuration for each member to use the engine with their own preferred settings.
- Built **gameobject hierarchy** and component handling. Also added sprite, animation and transform components using the event system to spread calculations throughout different frames and.
- Added **scene serialization** to save and load the scene to an xml.
- Built **UI components**:
  - **Canvas**: adapts to the window's aspect ratio and sets target area to draw children UI components.
  - **Image**: adapts to viewport using pivots, normal coordinates.
  - **Text**: handles surface rendering on changing text.
  - **Minimap**: draws map and updates fog of war texture displayed.
- Added **audio source** components that receive transform events to measure the spatial effect for each individual audio channel.
- Set up audio volume controls and a **fade effect** that triggers when pausing and resuming the scene.