UNIVERSITY OF ST ANDREWS

CS4099: MAJOR SOFTWARE PROJECT

A Tactical RPG Engine

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1 Introduction

A RPG (Role Playing Game) is game where player assumes the role of on the character. A RPG is usually story driven and the character usually has quest to complete. In the course of the game the player will go to different environments such as town and dungeons. In they these environments the player will have to battle opponents in battles. Combat in RPGs is normally a simple turn based system where player and the opponents take turns attacks each other using various skills.

A Tactical RPG is sub-genre of an RPG that focuses on the combat side of the genre. A Tactical RPG is series of `battles`, which take place in various environments intertwined with an over-aching story.

Each `battle` is grid based (like chess) where each player has a number of units(pieces). The players taken turns to moves their units. Each unit has attributes associated with it

Figure 1: **Tactics Ogre**[1] a classic Tactical RPG

such as strength, and hit points that affect all the actions in the game. Like chess there are different kinds of units which affects how the unit moves and what action they can perform. A unit can attack other player's units, the goal of the battle is usually to defeat all the opponents units.

The aim of this project is to create a engine which will take resources such as graphics, sound and rules of the game to create a runnable Tactical RPG.

1.1 Baseline

No previous work was used for this project. All of the project was creation during the course of the academic year.

2 Context Survey

2.1 Evolution of Tactical RPGs

Notable TRPGs

- Bokosuka Wars - probably the first TRPG

- Fire Emblem: Ankoku Ryu to Hikari no Tsurugi - First popular TRPG. Characters are unique

- Tactical Ogre:

  - First TRPG with isometric graphics.

  - Character battle order is determined by the character's 'speed' rather, each player moves all their units when its their turn.

  - First to have a branching plot and the player's choice effecting the game.

  - Associated the genre with the word 'Tactics', used by many later games

- Final Fantasy Tactics, widely popular, based on Tactics Ogre.

- Disgaea: Hour of Darkness: Allows the player to play random generated maps. The latest in the series is one of the few TRPGs that contain a map editor.

- Recent game, have mostly mix aspects from other genres, for example Valkyria Chronicles features FPS like shoting when attacking.

2.2 Overview of Game Engines

- `Sim RPG Maker 95`, one of the few tactical RPG's engines

- `RPG Maker` which it is based off.

- Mention engines such `unity` or `unreal` which used to make TRPGs?

3 Objectives

3.1 Primary

The main goal of the primary objectives is allow the user to create a complex Tactical RPG, with limited customisability.

- To develop an engine that takes:

  - The definition of character attributes and a combat system.
  - The definition of a world broken up into the smaller environments.
    * The rules of the game.
    * The kinds of enemies.
  - The definition of simple story as a wrapper for the whole game, from the start to the conclusion of the game
    * Which is told between the movement between different environments.
  - The set of selected character attributes.

  and create a playable tactic RPG.

- To include in the engine support for the following:

  - `units` with a fixed set of associated attributes such as:
    * Hit-points (which represent the health of the unit).
    * Strength.
    * Defence.
    * Move (The number of tiles the unit can move each turn).
  - `battles` which take place on grid and include:
    * A set number of `units` for each player.
    * A Winning `condition` such as defeat all of the other players units.
    * Battles are `turn based` meaning that each player moves all their units (once) before the next player turn.
    * A combat system.
  - A combat system that includes
    * `combat` between adjacent units.
      · When the unit hit-points are reduced to zero they are `defeated` and are removed from the map
      · A set of rules that govern the combat.
  - A predefined set of behaviours for how the non-player characters should behave.

              ∗ Including pathfinding.

        – A simple graphical representation of of the game.

              ∗ Which is show the grid with all the units.

              ∗ Allow the user to move their units and see the opponents moves.

              ∗ Allows the user to attack the opponents units.

              ∗ Text will be to describe the more complex actions such magic.

3.2 Secondary

The main goal of the secondary objectives is allow the user more customisability.

- Tile `height`, where units can only move to tiles of a smilier height.

- Tiles that are not passable such as sea, lava, etc.

- Tiles have different movement costs associated with them.

- Isometric graphics view of the game.

- Long distance weapons/magic for player and AI.

- Direction and height of the character's tile affects attack.

- Sound effects.

- Music.

- Saving and loading games.

- Allow the user to specify some of behaviour of non-player characters

  - Through the use of scripting.

  - An example: always attack a certain kind of unit or always attack the unit with the least Hit Points.

- A graphical view to allow user specify the input to the engine.

3.3 Tertiary

The goal of the Tertiary objectives are provide the user with more customisability and to provide a GUI for simple scripts.

- Custom events

  - Attached to units or titles, could be used for:

    ∗ Making the player win if some enemies unit has less then 50% Hit Points.

        ∗ Damaging a character if step on a specified.

        ∗ Showing some part of the story when a player's character reach a specified tile.

- A graphical editor for making custom maps, events and specifying the input to the engine.

  – The gui would also be able to create the scripts for simple event such as 'Defeat the leader' as a winning condition.

- Animations for units and movement.

4   Ethical Considerations

- Collection of data from questionnaire.

    - Just result of questionnaire, no personal data.

- Asking users to create a game.

- Asking users to play the created game.

5 Scripting

- Attached events to units, titles etc.

- Events get passed a `mapinfo` object containing.

    - a hashtable of the players unit and a hashtable of the enemies units..
    - The leader of each side if there is one.
    - The number of turns taken.

- `mapinfo` also contains methods such as `Win` and `Lose` to allow custom victory conditions.

- `dialog` method to make unit talk.

    - Either on unit or not.

- Unit events get passed the specified unit. Executed when:

    1. the units finishes it turn.
    2. is affected by magic.
    3. attacked.

- Tiles get passes the specified tile. Executed when:

    - A unit moves onto the tile.

5.1 Rules

5.1.1 AI

- Attack the player's unit with highest/lowest hp.

- Attack the player's leader unit (if there is one).

- If opponent's leader's hp < 20% `heal(leader)`.

- Attack player's characters of class <class>.

5.1.2 Events

Character

- If opponent's leader's hp < 50% then `win()`.

- If <character> dies then `lose()`.

World

- If `number_of_turns` > 20 then `lose()`

Tile

- If $<$character$>$ enters then `event(id)`

A   Questionnaire

1. Have you played a Tactical RPG before?

   (a) If yes, did Engine have features you like to create in a game?

2. How easy to use was the Engine?

3. What particular aspects of the Engine did you like?

4. What particular aspect of the Engine did you dislike?

5. Any comments?

A.1   Using the engine to create a game.

← strongly disagree   agree completely →

1. I think that I would like to use this system frequently.

☐ ☐ ☐ ☐ ☐

2. I think that I would help from an person experienced with the system in able to use the system.

☐ ☐ ☐ ☐ ☐

3. I thought that the system is easy to use.

☐ ☐ ☐ ☐ ☐

4. The game I created was fun.

☐ ☐ ☐ ☐ ☐

5. I think the system would be easy for most people to learn.

☐ ☐ ☐ ☐ ☐

6. I needed lots of extra knowledge to use the system.

☐ ☐ ☐ ☐ ☐

A.2   Playing a pre-created game

← strongly disagree   agree completely →

1. I found the game intuitive

☐ ☐ ☐ ☐ ☐

2. The game had a appropriate level of difficulty.

☐ ☐ ☐ ☐ ☐

3. I enjoyed playing the game.

☐ ☐ ☐ ☐ ☐

References

[1] Quest, "Tactics Ogre: Let Us Cling Together," 1995. 2