

TEMBO

Game Summary

Tembo is a real-time strategy game based on real-world issues. Elephants are under threat of extinction from poachers, climate change, and deforestation. With limited resources and funding, the player is tasked with protecting Elephants living within an Africa Wildlife Reserve from external threats.

Core Mechanics

- Earn cash from park visitors and charities
- Train park rangers to protect elephants and other wildlife
- Construct new buildings and guard towers
- Find and eliminate poachers
- Save the Elephants!

Gameplay

Game is a real-time strategy (RTS). Game starts with a park headquarters, visitor's center, and tourist bungalow. Player will add additional park buildings, guard towers, and train park rangers. As time progresses, the player will also need to ward of poachers without disrupting park visitors or the local wildlife. Player is victorious when all poachers are eliminated or defeated if poachers kill all remaining elephants.

Music

Upbeat with strong African percussion influence, indie, and pop. E.g., [African Tribal Orchestra](#), [Sioen: Calling up Soweto](#), and [No Wyld](#).

Art Style

Models will be low-poly, with simple textures. The environment will be more detailed in texture. Color palette should reflect African Savannas and Forests. Similar games are [Bannermen](#) and [Zero-K](#).



Part 1: Visualization and Implementation

I. Visualization

1. Concept Rendering



The example image is a demo game from RTS Engine, a Unity Store Asset. All objects will be low-poly but modified with greater detail and realistic colors than what is shown in the example image above. For more information about the RTS Engine, see [Resources](#) below.

2. Concept Objects

a) GUI

- i. Resources
- ii. Population
- iii. Status Bar
- iv. Play/pause button
- v. Unit Action Options
- vi. Building Options
- vii. Menu
- viii. Map

b) Player Buildings

- i. Park HQ
- ii. Bungalow
- iii. Visitors Center
- iv. Barracks
- v. Guard Tower
- vi. Training Camp
- vii. Motor Pool
- viii. Veterinary Clinic

- c) **Player Units**
 - i. Builder
 - ii. Guard
 - iii. Ranger
 - iv. Medic
 - v. Veterinarian
 - vi. Jeep
 - vii. Surveillance Drone
 - viii. Attack Drone
 - d) **Neutral Units**
 - i. Tourist
 - ii. Local Villager/farmer
 - iii. Local Law Enforcement
 - iv. Elephant
 - e) **Enemy Units**
 - i. Poacher
 - ii. Poacher Boss
 - iii. Terrorist
 - iv. Terrorist Boss
 - v. Enemy Jeep
 - f) **Environment**
 - i. **Savanna**
 - 1. Trees
 - 2. Shrubs
 - 3. Grass
 - 4. Dirt
 - 5. Water
3. **Visual Effects**
- a) **Unit Selection**
 - i. Target Selection
 - ii. Unit Animations
 - iii. Idle
 - iv. Move/run
 - v. Attack
 - vi. Death
 - vii. Remove
 - b) **Building Animations**
 - i. Highlighted space
 - ii. Construction in Progress
 - iii. Completed
 - iv. Damaged
 - v. Demolished
4. **Sound Effects**
- a) **Player Units**
 - i. Ready
 - ii. Selected

- iii. Move
- iv. Attack
- v. Death
- vi. Jeep
- vii. Jeep Explosion
- b) Player Building**
 - i. Selection
 - ii. Placement
 - iii. Building Construction
 - iv. Under Attack
 - v. Building Explosion
- c) Neutral Units**
 - i. Idle
 - ii. Attack
 - iii. Flee
 - iv. Death
- d) Enemy Units**
 - i. Idle
 - ii. Attack
 - iii. Flee
 - iv. Death
 - v. Jeep
 - vi. Jeep Explosion
- e) Background Forest/Savanna Noise**
 - i. Birds
 - ii. Forest Sounds
- f) Music**
 - i. African Beats
 - ii. Percussion Instruments
 - iii. Threatening/aggressive tempo
 - iv. Relaxed/safe tempo
- 5. Player Action Steps**
 - a) Mouse Selection Options**
 - i. Primary Button**
 - 1. Execute action of selected unit/building
 - 2. Move, build, attack, repair, heal,
 - 3. Menu Selection
 - 4. Play/Pause
 - 5. Map placement selection
 - ii. Secondary Button**
 - 1. Select unit(s) and buildings(s), single or multiple
 - iii. Middle Click/scroll**
 - 1. Zoom in/out
 - iv. Mouse Hover**
 - 1. Display unit/building health
 - 2. Display build highlight area
 - b) Keyboard Input**

- i. **Left Shift**
 - 1. Hold to select multiple units
- ii. **Numerical Keys 0 through 9**
 - 1. Assign selected units to numerical key
 - 2. Key press will call units assigned to selected input
- c) **Example of player action and response with mouse input:**
 - i. **Unit Movement**
 - 1. Player right clicks and selects a guard unit
 - 2. Player left clicks on terrain
 - 3. Guard unit moves to clicked location on terrain
 - ii. **Build new building**
 - 1. Player right clicks on builder unit
 - 2. Player right clicks guard tower located in the building menu GUI
 - 3. Information about the building is displayed in details window GUI
 - iii. **Player mouse hovers over terrain and building hover will either:**
 - 1. Display green highlight for can build here
 - 2. Display red highlight for cannot build here, and/or
 - 3. Display red highlight for not enough resources to build
 - iv. **Player left clicks mouse on terrain with green highlight**
 - 1. Builder unit moves to clicked location
 - 2. Builder unit constructs selected building
- 6. **Game Progress**
 - a) **In game notifications**
 - i. **Player is notified when:**
 - 1. Elephants are under attack from poachers
 - 2. Player Units and/or buildings are under attack
 - 3. Units are ready
 - 4. Building complete
 - 5. Poachers are spotted
 - b) **End Game**
 - i. **Game Win**
 - 1. All poachers are defeated and/or:
 - 2. All terrorists are defeated
 - ii. **Game Over**
 - 1. All elephants are killed and/or
 - 2. All Locals and tourists are killed/captured
 - 3. Player Base is destroyed

II. Implementation

1. Coding

a) The RTS Engine comes with all the necessary scripting and assets to build a playable game and supports both single and multi-player game play. Using the Demo as a template, I will replace all assets with my game assets, some are created by me, others are from the Unity Asset Store. See **Resources** for list of primary assets and tutorials.

b) Coding Questions

- i. How to successfully implement multi-player
- ii. How to change the resources to cash only
- iii. How to set up neutral units that will not attack the player
- iv. How to adjust the cost of units and buildings
- v. How to adjust the health and damage levels of units

2. Assets: Self Create or Store Purchase or both (modified)

Park HQ	Self		
Bungalow	Self		
Visitors Center	Self		
Barracks	Self		
Guard Tower	Self		
Training Camp	Self		
Motor Pool	Self		
Veterinary Clinic	Self		
Builder		Store	
Guard		Store	
Ranger		Store	Modified
Medic		Store	Modified
Veterinarian		Store	Modified
Jeep		Store	
Surveillance Drone		Store	
Attack Drone		Store	Modified
Tourist		Store	Modified
Villager		Store	Modified
Police		Store	Modified

Elephant	Self		
Poacher/Terrorist		Store	Modified
Poacher/Terrorist Boss		Store	Modified
Enemy Jeep		Store	Modified
Savanna Environment		Store	Modified
Sound Effects		Other	
Music		Other	
Animation Effects		Store	Modified

Part 2: Scale, Challenges and Resources

I. Scale

Game Parts	Max Quantity
Levels	3
Players	4
Enemy AIs	4
Neutral AIs	4
For each Player:	
Total Unit Population (Builders, Guards, Rangers, etc.)	100
Park HQ	1
Barracks	4
Bungalows	10
Visitors Center	1
Training Camp	1
Motor Pool	1
Guard Towers	5
Neutral Units for each Player:	
Elephants	25
Local villagers	20
Visitors/Tourists	20
Local Law enforcement	20
Enemy Units and Buildings for each Player	
Poachers	50
Poacher Boss	5
Terrorists	50
Terrorists Boss	5
Jeeps	10
Poacher or Terrorist Camps	5

II. Challenges

1. How will I create different levels that will also scale in difficulty?
2. How can I make the game play and controls user friendly without needing a tutorial?
3. How will I manage enemy timers and resource collecting?

III. Resources

1. Time Management

- a) Available time estimate per week:
 - i. 20 hours
- b) Realistic time estimate per week:
 - i. 15 hours
- c) Total Hours for next 5 weeks:
 - i. 75 hours

2. [RTS Engine](#)

- a) Cost from Unity Asset Store
 - i. \$60
- b) Asset Summary:
 - i. "The Unity RTS Engine provides all the features required to create your own RTS game and customize it. It handles map creation, factions, AI, buildings, units, resources, UI and much more. It also supports both single player and multiplayer."
 - ii. RTS Engine [Tutorial](#)

3. Additional Tutorials:

- a) <https://www.lynda.com/Unity-tutorials/Unity-5-Build-Real-time-Strategy-Game/427923-2.html>
- b) <https://unity3d.college/2018/05/08/let-players-place-objects-turrets-unity-rts-base-building-games/>
- c) <https://github.com/SnpM/LockstepFramework/wiki/Tutorial-Series>
- d) https://www.youtube.com/playlist?list=PLzDRvYVwl53sF6YROs_9QcP6peMjexwND
- e) <https://www.youtube.com/watch?v=0aFP4rnrNgc>

Part 3: Reality Check

I. Assessment

1. I'm confident I can make a working game as outlined in this Game Design Document within the next five weeks. No doubt there will be some challenges that I will need to address along the way, certainly with adding additional levels and difficulty. At the very least I will have one playable multiplayer level with a minimum of two players, two neutral factions, and two enemies.
2. Another concern is replacing the existing assets and animations in RTS Engine with my own and making sure that they work within the provided scripts.
3. Most assets I have already purchased from the asset store. I will also be creating my static assets as outlined above using Maya, some of which are already complete. The only foreseeable problem I have with assets is the time it will take to make them and exporting those assets from Maya to Unity.