

CENG 491, Fall 2004 – Senior Project, Survey Report

ADVENTURE GAME – A7

21.10.2004

Group Name: Wirtual Wision

Every member was assigned to research on the features that the current adventure games in the market have. The three games whose good and bad sides are discussed below are the examples of adventure games that we have found and selected among the results of our broad research.

Name: BROKEN SWORD: THE SHADOWS OF THE TEMPLARS	
Good	Bad
<ul style="list-style-type: none">- Coherent plot,- Dialog with other characters,- Combine objects,- Humorous points,- Control in real-time.	<ul style="list-style-type: none">- Not story related puzzles (boring),- Lots of words in dialogs.

Name: ALONE IN THE DARK	
Good	Bad
<ul style="list-style-type: none">- Objects can be used as weapons,- Multiple camera,- Sudden movements of camera,- Painting 3D characters instead of texture mapping fastens the game.	<ul style="list-style-type: none">- No control over the cameras,- Colored objects seem unrealistic,- That characters die easily requires too many game-saves.

Name: GABRIEL KNIGHT 3: Blood of the sacred, Blood of the damned	
Good	Bad
<ul style="list-style-type: none">- Dynamic lightening,- Gliding camera,- Incremental rendering (speeds up screen refresh allowing the engine to cache background when the camera is not moving and only render the changing parts of the scene. This also helps creating mimics.	<ul style="list-style-type: none">- Clipping,- Long load times.

In addition to these features, we also realize that some of the features used in the game are the most important factor for game quality and popularity. For example, although \$ 6 Million was spent for a game named as "*Last Express*", it was not popular due to some bad features such as:

- Slow transition in conversation with characters and interaction with environment,
- No video and animation,
- Poor story.

Platform of the games is also important for us because of compatibility for machines (PC, PlayStation, X-Box, etc...).

Regarding all the aspects discussed so far, we decided our game can be an ideal adventure game if and only it has the following features:

- An attractive background and a real-life story,
- Relevant and well-fitting puzzles in problem solving,
- Deterministic progress in the game scenario,
- An optimum difficulty level,
- A linear approach for the target; one final
- An easy-to-use and intuitive interface,
- Common actions not requiring lots of click or key strokes.

Roughly speaking, the game that we are going to develop will support shadowing (for only hero), lightening, isometric camera view, controls in real-time. Moreover, the interactive environment will contain special characters with which the hero will be able to make conversations. AI features will be implemented on the non-player characters. The performance and the fluency of graphical components will be a core concern for us in developing the game.

A detailed comparison of four adventure games according to the features they have is given in the appendix part.

Appendix - 3D Adventure Game Comparison Table

FEATURE	GAMES			
	TOMB RAIDER (2000)	HEAVY METAL (2000)	OUTCAST (1999)	THIEF II (2000)
ENGINE				
Atmospheric/ environmental effects - Water (drops, ripples, splash) - Weather (clouds, fog, rain, snow)	All are available, moving clouds, volumetric fog	Ripples, splash, moving clouds, rain	Ripples, splash, snow	Water, moving clouds, fog, rain
Collision detection	Falling welded-through door pushes Lara	Mostly 2D (Julie adjusts feet & legs on slopes when standing)		2D
Environment mapping (reflection)	Floors, Lara's cat suit, doors (lockers, glass cabinet)	Metallic surfaces, non-translucent glass, many other things	Water reflects backdrop/terrain	
Lighting	Dynamic (colored), smooth-fading, fire, flares, gunshots, flickering, binoculars, deep sea diving, suit flashlight, headset, revolving alarm light	Dynamic (colored), asteroid fragments, crystals (some), explosions, flamethrower, lightning	Static, colored	Dynamic ⊙ fire (fire arrows), colored ⊙ flares, gas lanterns
Particles effects	Bat & bug swarms, fire, rat packs, smoke, steam, welding torch sparks	Blowing leaves, explosion debris, fly swarms, settling feathers after giant bird deaths, some weapon effects	Cold breath, healing/saving, shooting lava, vulture-like bird swarms	Fly swarms, gas, lava (shooting), smoke, sparks (fire, streetlights), steam, water (dripping, falling, fountains)
Physics - buoyancy, friction, gravity, inertia, momentum, etc.	Lara, animals/enemies	Player character, animals/enemies ⊙ knock asteroid	Player character, animals/enemies	Player character, animals/enemies ⊙ objects: stackable, fall

		<p>fragments off ledges which break on hitting ground</p> <ul style="list-style-type: none"> ⊙ sliding doors push Julie ⊙ rope-suspended platforms pivot from Julie's weight 		<p>down (but don't usually angle correctly), fly through air, impact, move other objects slightly (depending on size), (+ Garrett & enemies) can block doors from closing or opening fully (doors can push small objects)</p> <ul style="list-style-type: none"> ⊙ floating barrels, crates, & rubble ⊙ most arrows arc when shot ⊙ deployed rope arrows settle into place ⊙ some objects block doors from opening and/or can be pushed by them ⊙ weight-sensitive columns & floor tiles ⊙ floating diving helmets ⊙ deployed vine arrows settle into place ⊙ Garrett's body stops garage doors
Shadows	Polygonal, Lara only, moving fan blades	Polygonal, player character, NPCs, aliens/enemies: horizontal, flat (2D); dynamic, multiple light source: position adjustment, distance lengthening &	Voxel ("dynamic soft shadow generation")	<ul style="list-style-type: none"> ⊙ prerendered, static ⊙ buildings/objects

		shortening		
Skeletal animation	Exists	Exists	Exists	
Texture <ul style="list-style-type: none"> - Filtering (bilinear, tri-linear) - Mapping (bump, mip) - Palette (color bit depth) - Title resolution 	Bilinear filtering, 16/32 palette	Bilinear and tri-linear filtering, mip mapping, flamethrower burns details, 16/32 palette	Voxels only, 16/24/32 palette	Bilinear filtering, blood pools/splats details, 16 palette, varies tile resolution
Transparency (alpha blending)	Semi/full: blood drops, electricity, fire, flare smoke, glass (some computer displays, windows), gun muzzle flash, light beams (spotlights, sunrays), X-rayed Lara	Water, explosions, fire, ghosts, glass (glasses, health vials, water ampules, windows), hologram (Julie), lens flare, lightning, light shafts, plant/flower petals (some), smoke, steam, wasp wings, water (+ dripping)	Water, cold breath, healing	Water, fire, gas, glass, ice, smoke, steam, water (+ dripping), water arrow quivers
PLAYER MODEL				
Character	Lara Croft, young Lara, Ireland episode	Julie Strain <ul style="list-style-type: none"> ⊙ facial animation ⊙ head looks at pickups and scripted objects ⊙ water level affects run speed & jump distance ⊙ combo weapon actions ⊙ hold 2 weapons (1 in each hand) 	Cutter Slade	Garrett (thief), stamina (when holding bow) <ul style="list-style-type: none"> ⊙ light gem ⊙ scouting orb links to mechanical eye
Action/moves	Nearly all humanistic action and moves	Climb (rope, wall), crouch (+ roll: 4 directions, walk), die (various), grab edge	Climb, die (various), jump, run, shoot, stomach lie (+ crawl), swim, walk	Block, climb: ladder, wall (mantle)/rope; crouch (+ run/walk), drink, eat, jump, pick lock/pocket, lean

		(while jumping or dropping) & horizontal pole (while jumping, + wrap legs around), hug wall (+ sidestep), jump, pick up (by moving over object), place detonator, pull (+ up edges), push, ready/store weapon (2 hands), run, shimmy (horizontal edges/poles), shoot (+ alternate), strafe, swing (rope, monkey bar, sling), turn (crank, handle), vault, walk		(sideways, forwards), open/close doors & manhole covers, pick up/drop/throw object/body, ready/sheath weapon, run, swim, swing blackjack/sword, walk, open sewer cover, play harp & piano, tilt/turn objects
Customizable (multi-player)	Not exists	Not exists	Not exists	Not exists
Footprint	Not exists	Not exists	Not exists	Not exists
Footstep sound		Land (varies), water (varies)	Land: dirt/sand, grass, rice patties, stone, wood; water	Land: carpet, dirt, gravel, metal, rock/stone, tile, wood; water (varies)
Number of polygons	In earlier version nearly 984			
Textures (skin)	Normal, green tank top, cat suit, SAS camouflage	Jumpsuit (+ rips & loses pieces); leather stirrups & thong	Normal	Normal
View (camera) - Perspective (person) - Pan - Zoom	1 st /3 rd	3 rd (1 st via console command), dynamic pan (keyboard- & mouse-controlled), around player: 360° horizontal, 180° vertical	1 st , dynamic pan (keyboard- & mouse-controlled), around player: 360° horizontal, 180° vertical, 7 levels zoom (1 1st-person +	1 st , dynamic pan (keyboard- & mouse-controlled), optionally after ~10 seconds while aiming bow zoom, Garret's mechanical eye

			binoculars, 6 3rd-person)	
LEVEL/WORLD DESIGN				
Number of worlds / levels	4 episodes; 15-20 levels	24 maps + training	5 regions	16 missions
Locations	Rome, Italy; Murmansk, Russia; Ireland; office tower block (Von Croft Industries location unknown)	Eden (fantasy-futuristic world)	Adelpha (parallel world)	A city (~19th century w/magic)
Cut scenes		Many	Not exists	
Full-motion videos			Not exists	16
Level/world editor	Room Editor		Not exists	DromEd
Environmental interaction <ul style="list-style-type: none"> - Collapsible scenery - Objects(break, drop, pick up, pull, push, ride, throw) - Buttons - Levers/switches 	Crates, lock, vent	Collapsible scenery, ammo, weapons, creepers, inventory, buttons, crates, hay bales, levers, switches, boulder, crates, hay bales, tree trunk, dung cart, hay (carried by crane), large machinery, sprinkler heads, shleeks, buttons and level switches	Collapsible scenery, dynamite, hoti (fruit), ammo, weapons, boat, Twon-Ha (like a camel) and buttons	Flags (T2), glass windows, ice (T2: + jump on), tapestries, vases, wood (crates, doors)— threshold, anything pickupable (except loot), ammo, weapons, bodies, crates, hammers (large), "junk": bottles (green glass, grey), dishes (bowls, cups, pans, plates, pots), goblets, trays, vases; plants (potted); inventory (- compass), anchors, chart compass, flares, hanker chief, lab equipment, letters, Mechanist mace, sextant, strongbox, barrels, bodies, broken bot pieces, crates, lifts, anything pickupable (except loot,

				papyrus/parchments/scrolls)
Outdoor landscaping/terrain design	Grid like: squares/blocks, more "organic [and] have shapes and complex surfaces"	Somewhat expansive but still claustrophobic	Voxels	Mostly indoors or urban
Puzzles	Find items & combine	Find keys/items	Find keys/items	Breaking and entering, evade detection (sneak), find/steal items, follow/trail people, pick pockets
Traps/hazards	Breaking metal walkways, fire, lasers	Acid, closing sliding doors, gas (plant spores), rocks (falling & rolling), spiked cylinders (rolling)		
WEAPONS				
Bullet holes	Not exists	Exists	Not exists	
Bullet shells	Eject, bounce off ground, make sound, then disappear ◎ water ripples & splash		Eject, bounce off things, make sound, then disappear after a few seconds	
Targeting	Automatic & manual	Automatic & manual	Manual	Manual
NPCs (Non-Personal Character)				
Animals/enemies	Bats, dogs (Doberman Pincers, German Shepherds), humans, lions, rats, skeletons, statues, water wraith	Aliens, birds (giant), shglikeis (when mad), plants (arrow-shooting, eating, strangling vines)	Aliens, humans, gorgor, spiders, vulture-like birds, compos (large water plants), zeedog (canine-like animal), etc.	Humans, mechanical droids (security & worker), tree humanoids
Artificial intelligence	◎ Zap companion (aural only) ◎ sound-reactive	◎ shglikeis: distract (training area only), knock unconscious,		◎ sentries no longer exhibit "frustrated" behavior: if a guard can't kill you for

	<ul style="list-style-type: none"> ⊙ more environmental interaction: move furniture, sit down, sleep 	<ul style="list-style-type: none"> aggressive when hurt ⊙ birds move out of Julie's way ⊙ cave claw hand can kill animals/enemies 		<ul style="list-style-type: none"> whatever reason, s/he'll run off to sound an alarm or get help ⊙ path finding improved to mimic reality ⊙ guards raise their awareness level if come across something out of place (like a knocked-over plate)? ⊙ sentries relight extinguished torches from Garrett's water arrows
INVENTORY				
Design	Store, combine, & use items	Store & use items	Store & use items	Store & use items
Item/objects	Artifacts, flares, keys, weapons/ammo, aqualung, batteries, binoculars (+ flashlight), canisters (oxygen, nitrogen), chalk, chloroform, cloth, coin, crowbar, discs, fuse, gemstone pieces, hammer, keycards, Mercury stone, pitchfork, rubber tube, suit console, symbols, Timex TMX, valve wheel	Weapons/ammo, health vials, gas cans, quest items, shields, Tiki runes, water ampules	Weapons/ammo, artifacts, beacon, binoculars, cloaker, holographic projector, hoti (fruit), keys, lexicon, notebook, plants, minerals	Weapons/ammo, compass, flash bombs, flasks/potions (breath, health, holy water, speed), food (apples, bread, carrots, cheese, deer legs), lock picks, keys, papyrus/parchments/scrolls, loot (coins: gold, silver; goblets, gold/gem vases, tiaras)
Map		Not Exists	2D, 3 sizes (overlaid),	2D, vague position, add

			rotates w/camera, zoom; precise position	text/notes
Pickups	3D objects	3D objects	3D objects	3D objects
OTHER				
Multi-player	Not Exists	Not Exists	Not Exists	Not Exists
Sound	Stereo, no "oomph!" (Run into something) and "aha" (pickup object), binocular zoom; no vault or jump	Stereo, A3D & EAX		Stereo