

Laser Sneak

Real - time

5 - players

Video game project proposal

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Outline

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Project Overview

- Real - time, Open - source, 5 player video game that uses interactive Qt Widgets
- Multiple Qt-based interactive GUIs that allows the user to join, pick their character, enter a name, a quit menu, and a death / leaderboard menu that they can either quit or play again from.
- Leaderboard GUI to show the top performers in the game i.e. who lives the longest along with their username, think arcade games.
- Users can move around the playing field to discover new territory in order to shoot other players when they cross into their path.
- Game cannot crash when:
 - A user loses connection
 - A user intentionally quits
 - A new user joins

Project Overview 2

- Users have laser tags that they can shoot other opponents with (left click) and a powerup on a 15 second cool down that will automatically delete 5 random pixmaps.
- Users begin with a fully colored screen of the same pix-maps, as they move around using WASD they “discover” the playing field by deleting those pixmaps.
- When another user crosses one of the players discovered (deleted) pixmaps, they show up on their screen, but will disappear when going behind the pixmaps they have not discovered.
- Application must be fully functional on ***blackhawk*** and laboratory systems.

Market Research

- Snake

- User eats objects to grow in size and moves around a board
- <http://zetcode.com/gui/qt5/snake/>
- No other users, no “weapon”, size change, no hidden background.

- puzzel-jigsaw

- Similar in that I want to have a foreground that moves and background that stays.
- Gameplay is different and this is simply an example of how I want the foreground to act.
- <https://www.linux-games.org/p/1413819/>

Requirements

| FR # | PRIORITY | DESCRIPTION |
|-------|----------|---|
| FR001 | HIGH | System shall allow new users to join the game but not by individual IP's or hard coded networks |
| FR002 | HIGH | System shall allow user to fire their laser gun to tag another player. |
| FR003 | HIGH | System shall allow user to use their power up every 15 seconds and be activated with right click. |
| FR004 | HIGH | System shall allow user to leave without interrupting the flow of the game. |
| FR005 | HIGH | System shall allow user to see the leaderboard after they are tagged. |
| FR006 | HIGH | System shall allow user to pick their name and character color when joining the game. |
| FR007 | HIGH | System's leaderboard menu shall allow the user to play again or quit. |
| FR008 | HIGH | The system shall be fully functional on the laboratory CentOS machines and blackhawk |
| FR009 | HIGH | The system shall utilize real-time, interactive Qt graphics and animations |
| FR010 | LOW | The system may provide audio feedback when tagged and fire laser gun. |
| FR011 | HIGH | The system shall utilize MySQL database for exercise storage and collection of assessment data |
| FR012 | LOW | System shall display other character's names as they appear on screen. |
| FR013 | HIGH | The system shall be implemented using Qt 5.2.x |
| FR014 | HIGH | The system shall provide feedback as to what menu they are in and what selections they make in those menus. |
| FR015 | HIGH | System shall use socket-based networking and allow users to join. |
| FR016 | HIGH | System shall not let users see each other until they cross into their discovered path. |

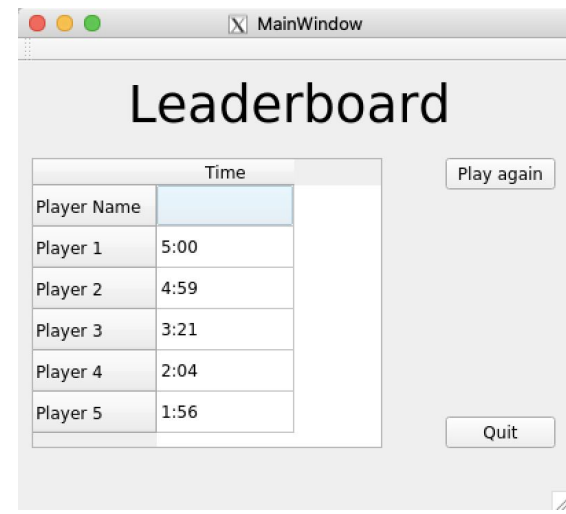
Storyboard



This is the first menu you see, select player name and player color.



This dialog shows when you hit the escape key or press the quit button in the welcome or leaderboard menu.



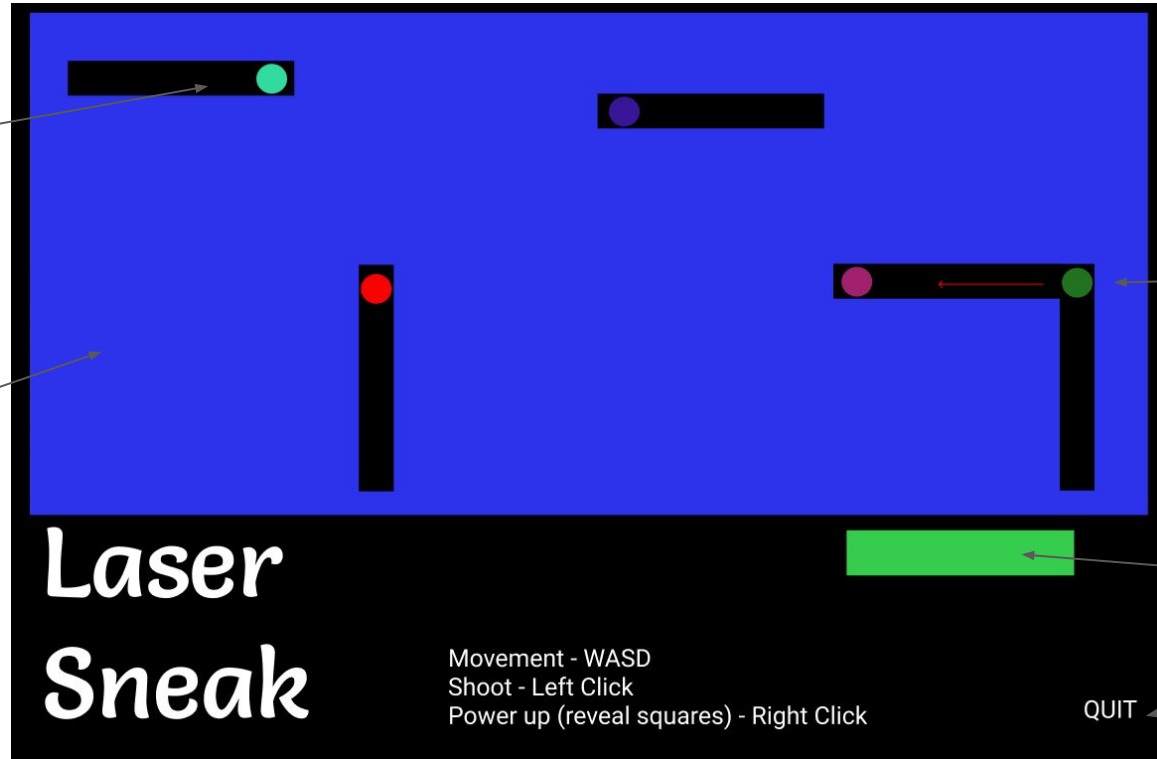
Leaderboard menu, shows playernames and times survived. You can play again (calls welcome menu) or quit (calls quit menu)

Storyboard - visuals

Other players
are moving
around.

Background
made of
“erasable”
pixmap

Note that, for example
the teal player can
only see his rectangle
and nothing else. This
is the overall view of
the game.



Green player
fires at magenta
player

Power up status bar

Quit button

QUIT

Movement - WASD
Shoot - Left Click
Power up (reveal squares) - Right Click

Use Cases

| UC # | NAME | DESCRIPTION |
|-------|------------------|---|
| UC001 | Network | All users network information should be kept private from other players |
| UC002 | Fire | Weapon should fire in the direction the player is pointing (last WASD, fire with left click) |
| UC003 | Powerup | Power up shall remove 5 unseen squares when used. |
| UC004 | Leave | When leaving the other players should know and quit should shut down all Qt screens. |
| UC005 | Leaderboard | Leaderboard should update when the game is over. |
| UC006 | Name | The name should be no longer than 10 characters. |
| UC007 | Leaderboard Menu | The play again button should make the user wait until the current game is over. |
| UC008 | Players | The system should allow for different computers to run the game (i.e. remote launching.) |
| UC009 | Pixmaps | The pixmaps implemented should all be the same color and should be deleted to reveal background as a player moves across them |
| UC010 | Audio | Sounds should resemble that of a laser tag game. |
| UC011 | Database | The database should not be tampered with by other players, only updated. |
| UC012 | In-Game-Name | The in game name should be an abbreviation of the real name (first 3 characters.) |
| UC013 | Language | All commands should be consistent and not bounce between Qt4 / Qt5 etc. |
| UC014 | Menus | Menus shall be responsive and give feedback and should close once a selection is made. |
| UC015 | Movement | Movement should be implemented through WASD. |

Supplemental Requirements

| SR # | Brief Description |
|-------|--|
| SR001 | The system shall be implemented using Qt 5.2.x |
| SR002 | The system shall be fully functional on the laboratory CentOS machines and blackhawk |
| SR003 | Pixmaps for the foreground should all be the same color |
| SR004 | Text labels at the bottom of the game shall show controls |
| SR005 | When someone gets tagged they shall be removed from the game |

Traceability

[illegible]