



Technical Manual

Game Control Panel

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EE 491

Product Design II

By

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Section 1. Introduction

.1 Overview

David Sutton Friday, 8:33 PM

Need to see about getting this changed. For the formatting of .1

The game control panel allows the attraction host to specify the duration of the game, number of lives, number of teams, start the game, stop the game, and receive the output of the score.

1.2 Scope

This document provides an overview of the game control panel subsystem and operational instructions.

Section 2. Theory of Operation

2.1 System Overview and Purpose

The game control panel is the way that the attraction host will control the game parameters, start the game, and view the final score.

2.2 Subsystem Purpose and overview

This is a subsystem application that will run on the Robotag server. The Game Control Panel does not communicate directly with the robots or guns. The robot will communicate with the guns through 802.12 wireless communications. The robot will keep a log of who was shot and who they were shot by based on the information the robot receives from the guns. This information is relayed to the Game Server by the robot and appended into the game scores text file. This application will send a signal through the Game Server to the laser gun subsystem to start, resume, or end a game. The Game Control Panel will read confirmed hit data from the text file and display game scores. When the game is reset the Game Control Panel will append the score results to the end of the file and move the file to an archived games folder.

2.2.1 Subsystem Images Schematics/Block Diagram

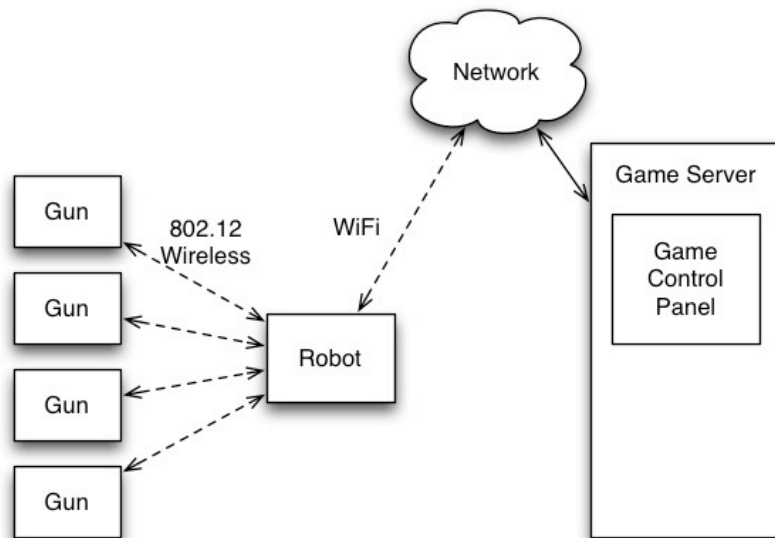


Figure 1 Block Diagram of System Communications

As shown in Figure 1, the Game Control Panel does not interface directly with the laser guns or the robots. All communication is conducted by other applications on the Game Server. The Game Control Panel communicates through the use of the GameScores.txt

file. All score information is appended to the GameScores.txt file and the Game Server will scan this file for messages to send to the guns. The keyword will remain on the bottom line of the application for a minimum of 100 milliseconds to give the Game Server time to read the value before it is potentially replaced by a different value.

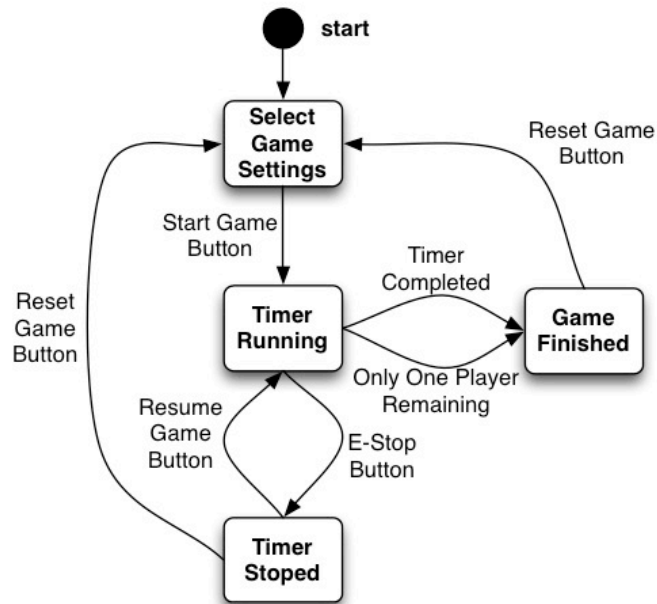


Figure 2 Game Control Panel State Diagram

The Game Control Panel has four distinct states. The select game settings page will allow the attraction host to configure the game's number of lives, length, and number of teams. The timer running state will automatically refresh the score data and count down the time in the game. The timer running state will continue until the user presses the emergency stop button, the timer completes, or there is only one player remaining in the game. The timer stopped state will not count down time or refresh score data. This state waits for the attraction host to reset or resume the game. The game finished state will display the final score information until the user resets the game.

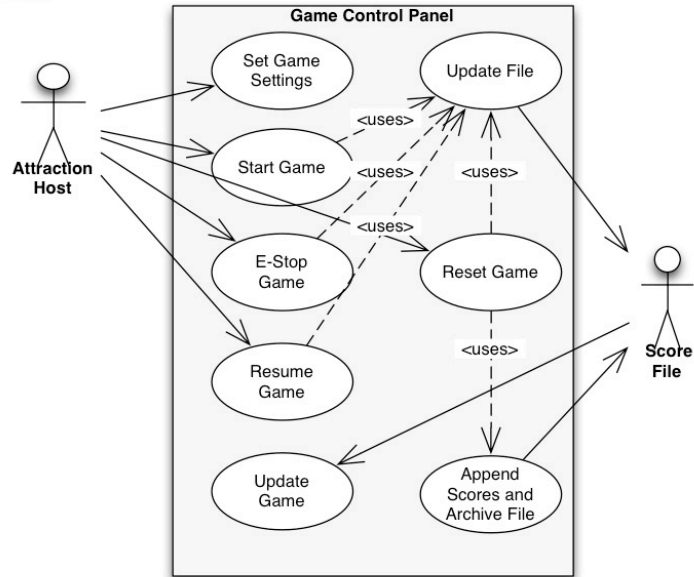


Figure 3 Use Case Diagram

The Use Case Diagram in Figure 3 shows the actions caused by the Score File and Attraction Host. The attraction host can create settings, start the game, reset the game, E-Stop the game, and resume the game. All of these actions, except for set game settings, will update the score file. The reset game action will also perform the action of appending the scores to the end of the file and archiving the game file. The score file has the action of updating the game when additional score information is added to the file.

2.2.2 Subsystem Operations

Open the Game Control Panel application on the Game Server. This will select the number of lives, number of teams, and game duration. Click the start button to begin the game. If the game needs to end for any reason click the emergency stop button. To resume the stopped game click resume. Once the game is stopped or has been completed you may reset the game by clicking the reset button.

Section 3. Controls and Indicators

3.1 Purpose

This section lists the controls available in the game control panel and their functions.

3.1.1 Description of controls and Images

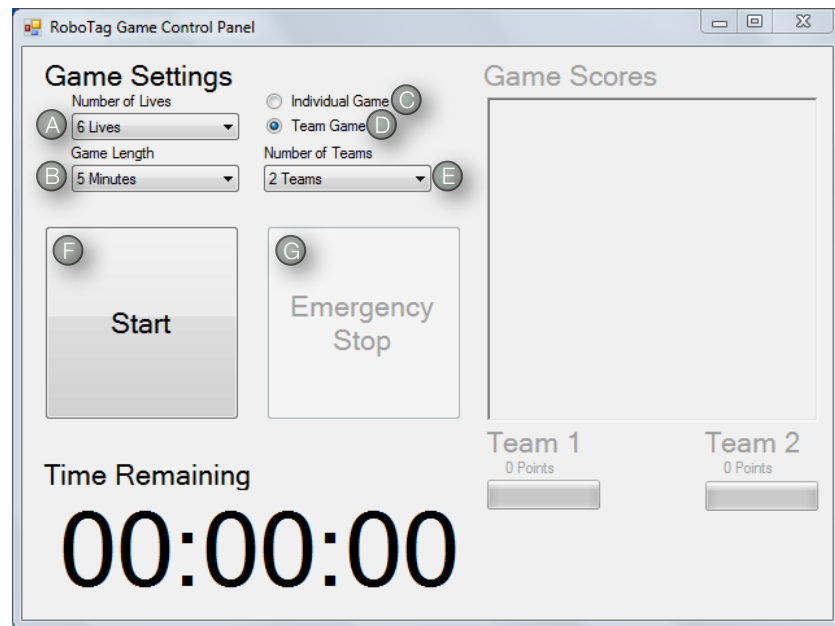


Figure 4 Game Welcome Screen

A–Number of Lives:

This drop down allows the attraction host to specify the number of lives available for each player.

B–Game Length:

This allows the attraction host to specify the length of the game.

C–Individual Game:

This allows the attraction host to specify an individual game.

D–Team Game:

This allows the attraction host to specify a team game.

E–Number of Teams:

This allows the attraction host to specify the number of teams. This control will only be visible if the team game control is selected.

F–Start/Resume Game:

This button will start or resume the gameplay.

G–Emergency Stop/Reset:

This button will stop an active the gameplay in the event of an emergency. If the game has already been stopped this button can also be used to reset the game. The text of the button will change to indicate if the button will stop or reset the game.

3.1.2 Description of Indicators and Images

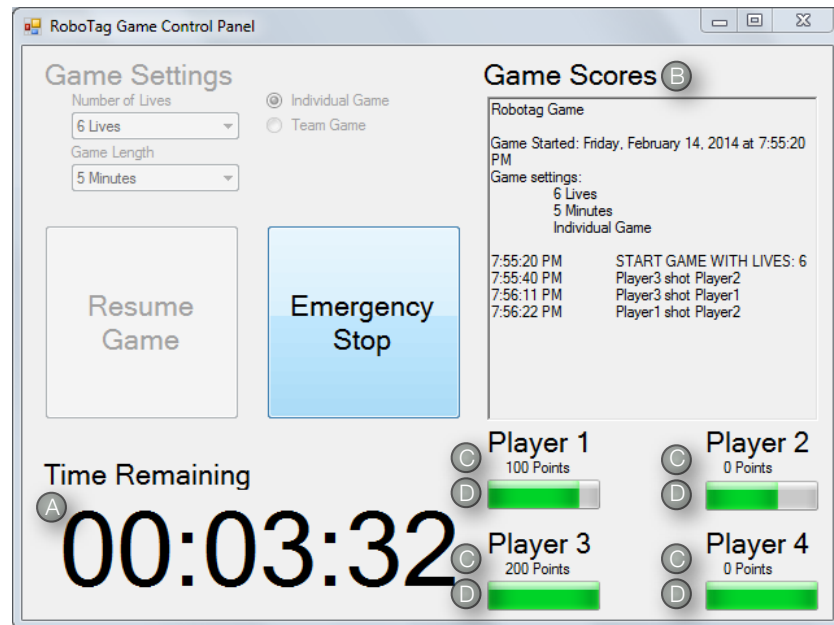


Figure 5 Game in Progress

A–Time Remaining:

Displays the time remaining in the game.

B–Game Scores:

This text box will display the contents of the GameScores.txt file.

C–Points Indicator:

The number underneath the player or team indicates how many points that team or player has earned during the duration of the game.

D–Life Indicators:

The green rectangles underneath the player or team names indicate how much life each player has remaining in the game. When the rectangle is completely full with the green bar the player or team has the maximum number of lives. When the rectangle is completely empty of the green bar that player or team does not have any life remaining.

Section 4. Troubleshooting and Maintenance

4.1 Troubleshooting Symptoms and Probable causes

Error: Can not receive score information.

4.1.1 Subsystem troubleshooting

Explanation: The game server has lost communication with the network. Restart the game server and re-establish communication with the robot.

Section 5. Setup Required for User (Installation)

5.1 Subsystem Set Up Actions

The minimum system requirement for this application is that the computer running the application must have Microsoft .NET Framework 4.5 or greater.

1. Open the Game Control Panel installer folder

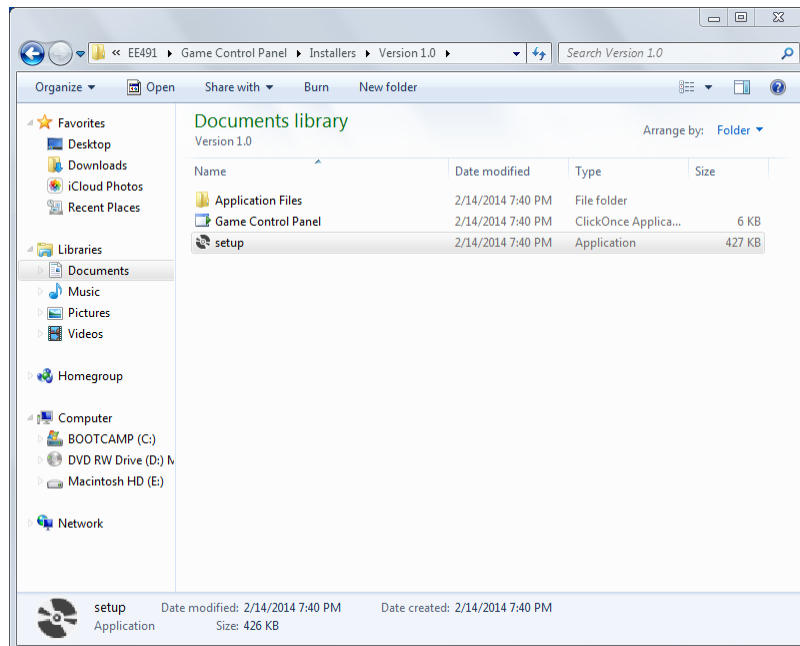


Figure 5 Game Control Installation Folder

2. Double click the setup icon.
3. When the security warning pops up notifying you that this application is from an unknown publisher click Install.

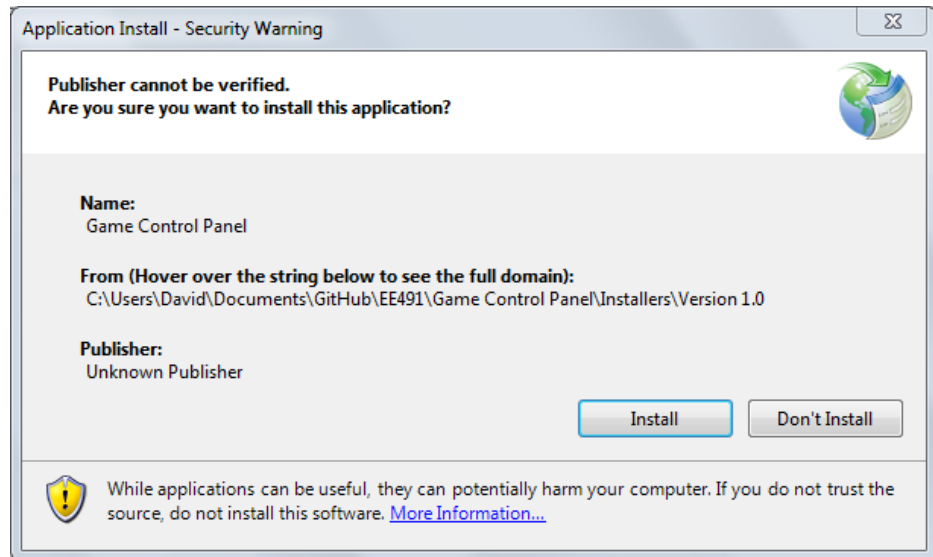


Figure 6 Security Warning

4. The application is ready to use

5.2 Uninstall the Application

1. Select Control Panel from the start menu

David Sutton Friday, 9:49 PM

What if the user is on Windows 7 and does not have a start menu?

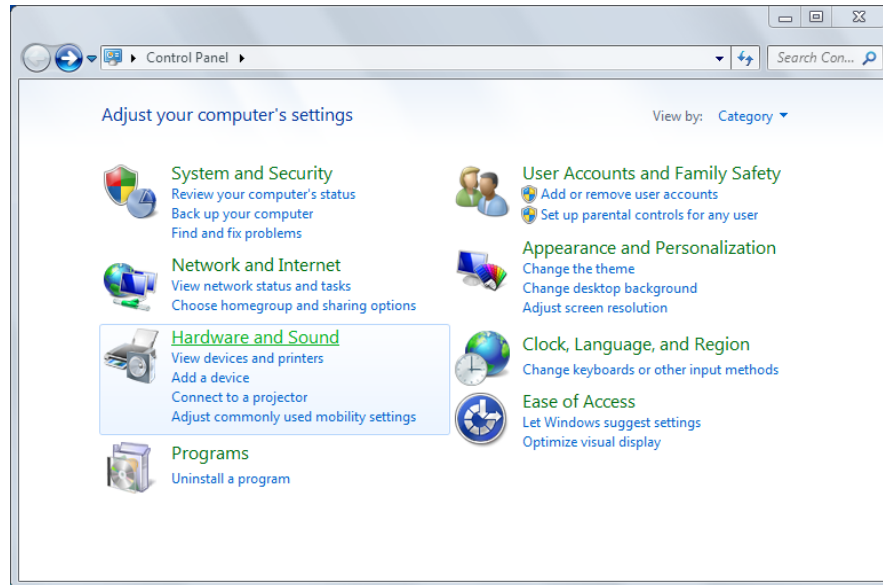


Figure 7 Windows Control Panel

2. Select Uninstall a program from the Programs header.
3. Select Game Control Panel from the application list

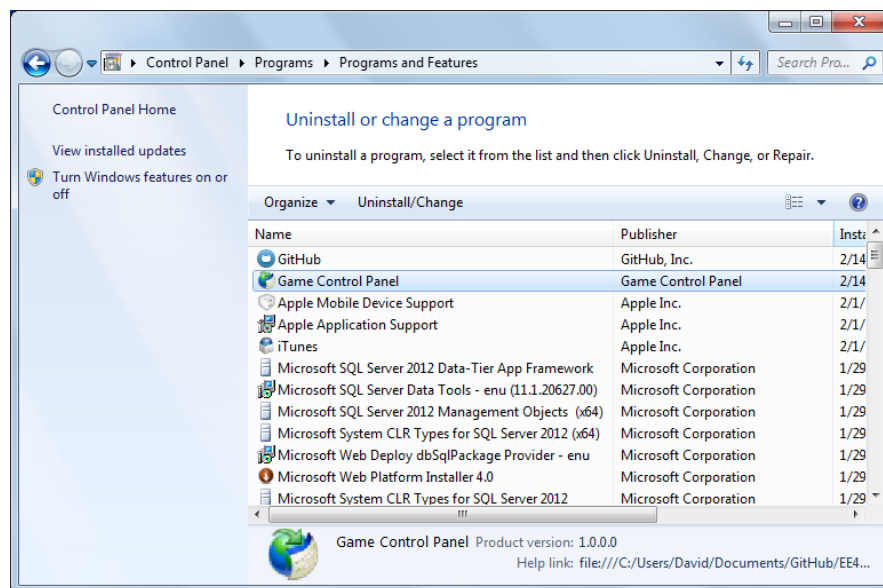


Figure 8 Uninstall or change a program

4. Select “Remove the application from this computer” and then click OK

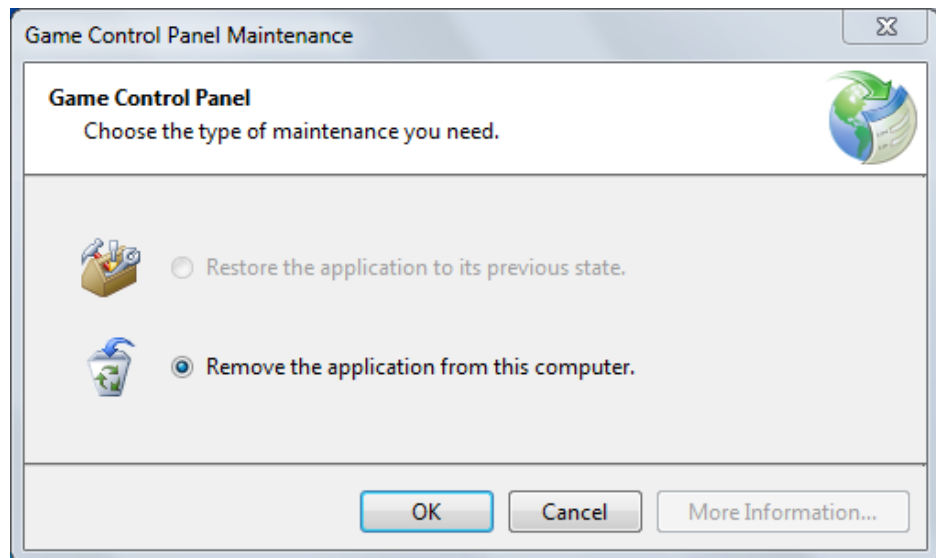


Figure 9 Remove the application from this computer

5. The Game Control Panel has now been successfully removed from your computer

Section 6. GameScores file

6.1 Overview

The GameScores file is essential for communication between the Game Control Panel and the rest of the system. The Game Server will record information about each successful hit in the GameScores file so that the Game Control Panel may read this information and update the scores. The Game Control Panel will start and stop the gameplay by writing keywords to the GameScores file that will be read by the Game Server and sent to the laser guns. When the game begins a formatted header will be added to the text file displaying the game settings. When the game is reset, the final game scores will be appended to the end of the file and the GameScores file will be moved to an archives folder and given a new name.

6.2 Format Specifications

6.2.1 Keywords

The Game Server will scan the GameScores file for keywords to send messages to the laser guns.

Valid keywords are:

- “ENDKEYWORD”
 - Tells the laser guns to end the game and stop shooting or receiving hits.
- “RESUMEKEYWORD”

- Tells the laser guns to resume the current game in progress
- “START GAME WITH LIVES: ”
 - Tells the laser guns to start a new game with the number of lives indicated by the digit immediately following the keyword

The Game Server is only concerned if a keyword appears on the bottom line of the GameScores file. The GameScores file is designed to be a human readable log of all game activities, so keyword will remain in the file after their messages have been handled by the Game Server. The Game Server has 100 milliseconds to respond to the keyword message before it could potentially be replaced by another keyword.

6.2.2 Hit Information

The Game Control Panel will scan the text file for hit information. The hit information is defined as one occurrence of PlayerX followed by one occurrence of PlayerY. In this example X is a digit representing the number of the player or team who shot the laser blaster and Y is the digit representing the number of the player or team who was shot. There can be text before the first occurrence of PlayerX, between PlayerX and PlayerY, and after PlayerY. Formatting of text before, after, and between the PlayerX and PlayerY is not defined, but it is recommended to format the entry in a human recognizable string. The recommended format is a timestamp followed by a tab and the text “PlayerX shot PlayerY”. There can only be one hit recorded per line. The Game Control Panel will recognize the hits sequentially starting at the beginning of the file and ending at the final line of the file.

The Game Control Panel will recognize and ignore erroneous data in the file. For example:

- A player or team can not shoot another player if they are dead.
- A player or team can to be shot if they are dead.
- A player or team can not shoot themselves.
- A player or team can not have negative points.
- A player or team can not have negative lives.

If a hit is recorded the shooting player will earn 100 points and the player who was shot will loose 25 points. A player or team can not have negative points, and therefore will only loose 25 points when they are shot if they have 25 points or more to loose. Every time a player is shot they will loose one life.

6.3 Accessing Game Data

The GameScores file is located at C:/Robotag/GameScores.txt
Archived game files are located at C:/Robotag/Archives

To View Archived Game Data:

1. Go to the C:/ directory

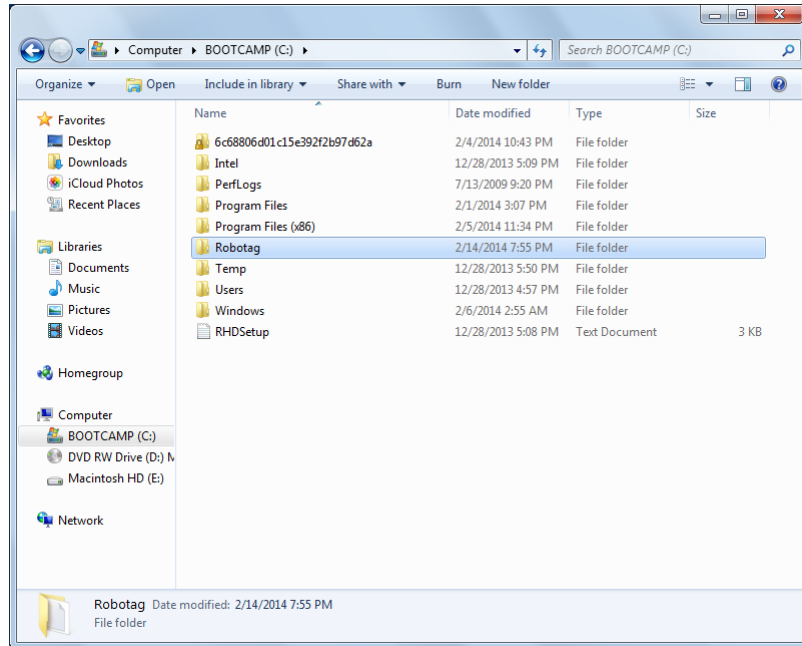


Figure 10 C:/ Directory

2. Open the Robotag directory at C:/Robotag

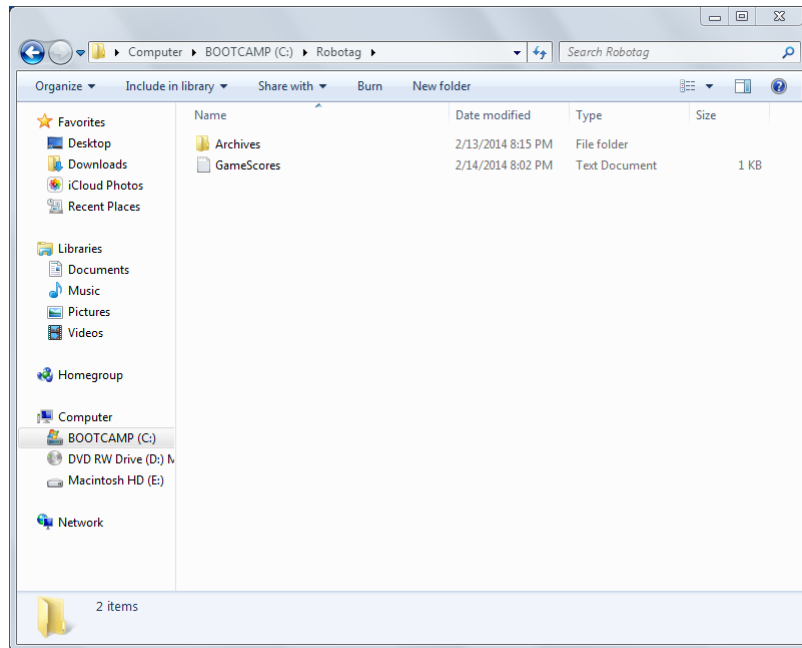


Figure 11 C:/Robotag directory

3. Open Archives Directory

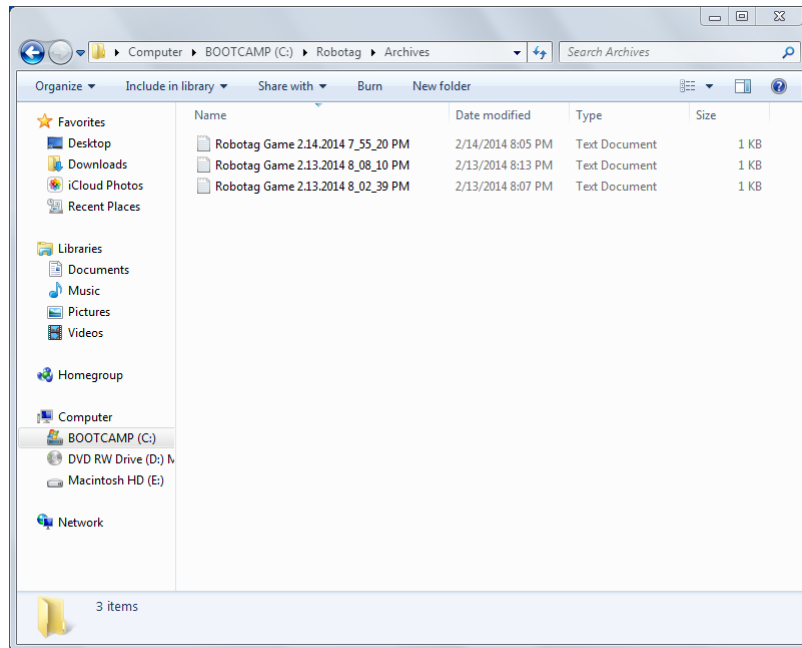
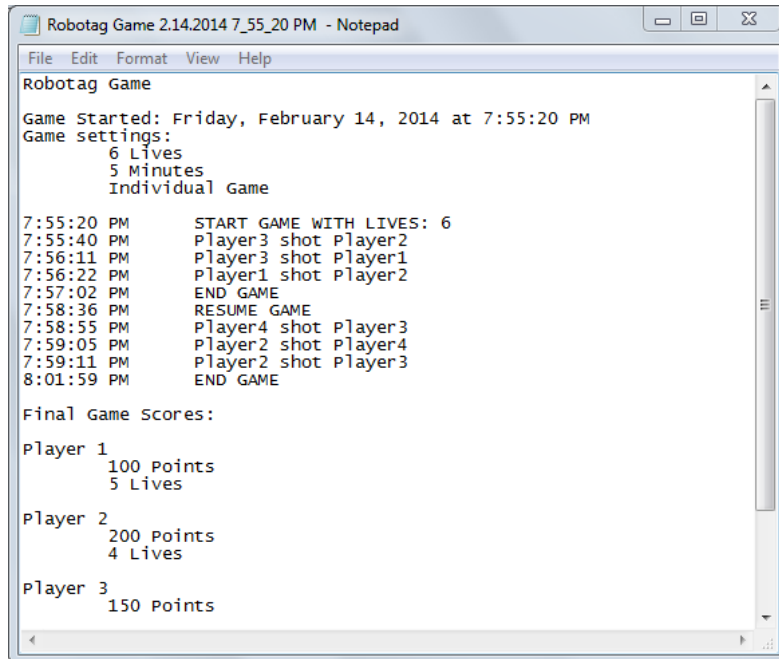


Figure 12 Archives folder

4. Double click the file from the date and time that you want to view. This will open in Notepad by default.



```
Robotag Game
Game Started: Friday, February 14, 2014 at 7:55:20 PM
Game settings:
    6 Lives
    5 Minutes
    Individual Game

7:55:20 PM    START GAME WITH LIVES: 6
7:55:40 PM    Player3 shot Player2
7:56:11 PM    Player3 shot Player1
7:56:22 PM    Player1 shot Player2
7:57:02 PM    END GAME
7:58:36 PM    RESUME GAME
7:58:55 PM    Player4 shot Player3
7:59:05 PM    Player2 shot Player4
7:59:11 PM    Player2 shot Player3
8:01:59 PM    END GAME

Final Game Scores:
Player 1
    100 Points
    5 Lives
Player 2
    200 Points
    4 Lives
Player 3
    150 Points
```

Figure 13 Archived Game File

Section 7. Glossary

| Term | Definition |
|-----------------|---|
| Attraction Host | The person who will be running the demonstration of RoboTag. This is the operational role that will include setting up the game parameters and starting the game. |
| E-stop | Emergency stop to terminate the game prematurely |