Revision History

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| --- | --- | --- | --- |
| **Date** | **Version** | **Description** | **Author** |
| 23/03/2014 | 1.0 | Add GUI components’ design. | Erdi Gültekin |
| 24/03/2014 | 1.1 | Update GUI components’ design. | Erdi Gültekin |
| 24/03/2014 | 2.0 | Add Controller design. | A. Emre Ünal |
| 24/03/2014 | 2.1 | Update GUI components’ design. | Erdi Gültekin |
| 25/03/2014 | 2.2 | Update Controller interface. | A. Emre Ünal |
| 25/03/2014 | 2.3 | Update Network components | Deniz Sökmen |

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# Introduction [EREN]

Brief description of the software system and the purpose of the document.

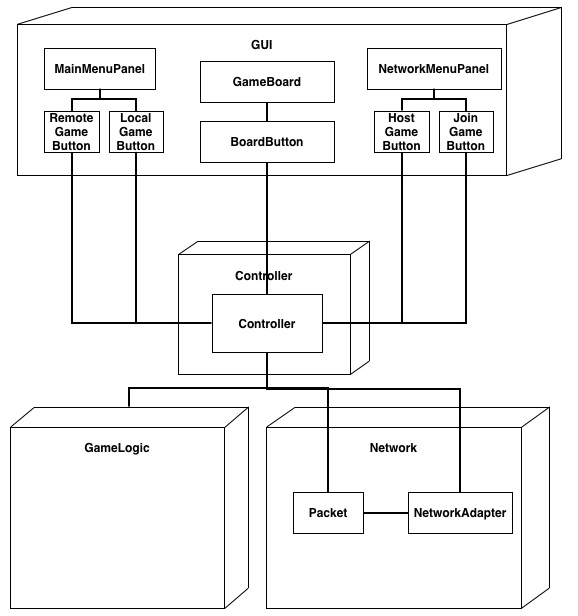
This document describes the design of the XXX software system.

## References

### Project References

| # | Document Identifier | Document Title |
| --- | --- | --- |
| [R1] | SRS | Software Requirements Specification |

# Software Architecture overview [EREN]



# Software design description

Describe each top level package/component of your software and if necessary sub-components/sub packages.

Use Class diagrams, sequence diagrams and deployment diagrams to illustrate your description.

## Graphical User Interface

### Component interfaces

The user interface of TicTacToe game consists of 4 different components which are MainMenuPanel, NetworkMenuPanel, GameBoard and BoardButton.  
  
MainMenuPanel is designed to catch the user decision about game type. It offers localGameButton and remoteGameButton components to the user.  
NetworkMenuPanel catches remoteGameButton as an input via Controller. It offers joinGameButton and hostGameButton to the user.  
GameBoard can take its input either from MainMenuPanel or NetworkMenuPanel via Controller. It is designed to capture the inputs from localGameButton, joinGameButton and remoteGameButton to start to visualize the GameBoard.

### Component design description

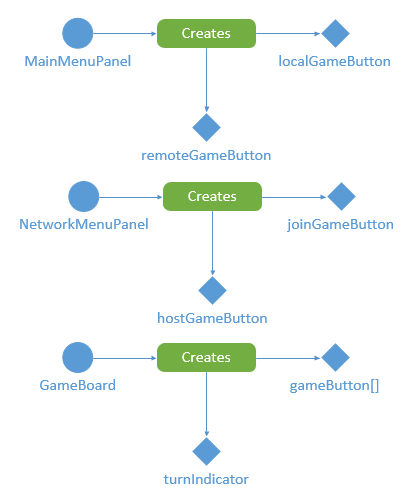
### 

MainMenuPanel: This component creates the main menu of the game. It has two buttons to redirect user either to a local game or to a network game.  
  
NetworkMenuPanel: This component can be triggered by network game button on the MainMenuPanel. It presents host game and join game buttons to user in order to set up a network game. Join game option uses pop-up box to get IP address information. Host game option uses pop-ups to inform the user about status of remote play (e.g. player is connecting).

GameBoard: This component can be triggered by local game, join game or host game buttons. It creates the game board which has 9 “BoardButton”s and a player turn indicator. It is also creates pop-up boxes to inform the user about game results and the status of remote player (e.g. disconnection).

BoardButton: This component is used by GameBoard. It includes fields that are required for game such as its status and its sign.

### Workflows and algorithms



### Software requirements mapping

SRS-REQ-101 [R1]: This requirement is handled by MainMenuPanel, GameBoard, BoardButton and relevant other Controller & Logic units.

SRS-REQ-102 [R1]: This requirement is handled by MainMenuPanel, NetworkMenuPanel GameBoard, BoardButton and relevant other Controller & Logic units.

SRS-REQ-103 [R1]: This requirement is handled by MainMenuPanel, NetworkMenuPanel GameBoard, BoardButton and relevant other Controller & Logic units.

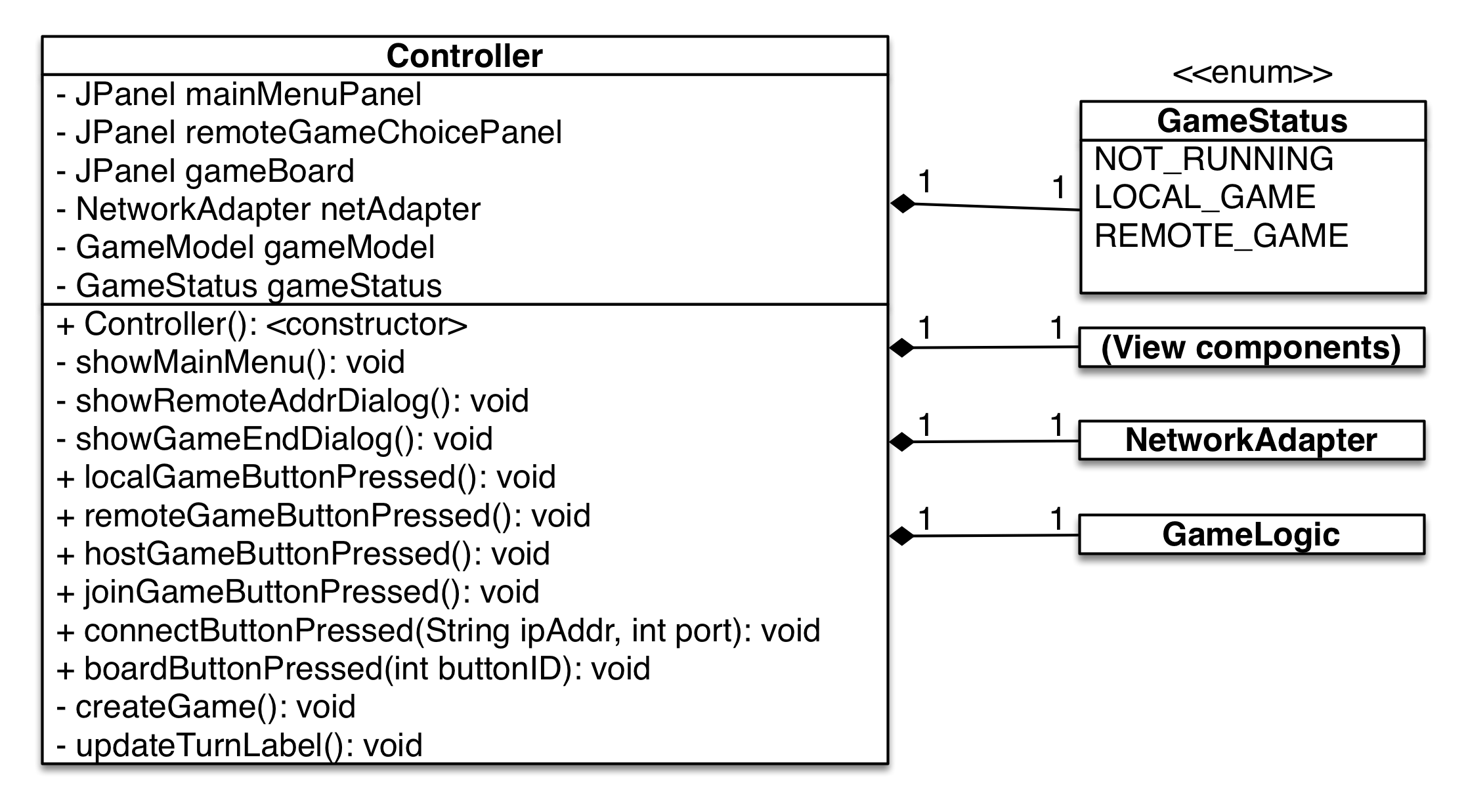
## Controller

### Component interfaces

Controller class creates, uses, manages and destroys each and every other component part of the TicTacToe game software.

Controller class provides an interface for the buttons in the GUI. The buttons use the interface provided by the Controller as their event listeners. For example, the event listener for the localGameButton instance in the MainMenuPanel instance is the Controller::localGameButtonPressed() method. Thus, we can generalize this principle for every Controller::[\*]Pressed() method by concluding that they each represent an interface for a specific button.

### Component design description



### Workflows and algorithms

### Software requirements mapping

This component handles the following requirements:

1. SRS-REQ-101 LOCAL
2. SRS-REQ-102 JOIN
3. SRS-REQ-103 HOST
4. SRS-REQ-001
5. SRS-REQ-003
6. SRS-REQ-006

## Network

### Component interfaces

The Network component basically consists of two parts: Network Adapter and the Network Packets.

### E:\Downloads\Untitled Diagram(1)(1).jpgComponent design description

NetworkAdapter: Controls all of the network flow and provides all network-related actions in the game. It can host or connect a game, send packets through the network to the peer or listen to the peer to receive a packet.

Packet: Serializable network packets which are serialized and sent through the network and deserialized on receive. Carries information about the action.

### Workflows and algorithms

NetworkAdapter itself does not have a task except creating and closing client and server sockets. The Controller will call any other actions, like receiving and sending packets. Therefore, the network module does not have its own sequence diagram. Packets are created by the controller and forwarded to the NetworkAdapter for transmission.

After creating the NetworkAdapter, if the game is hosted, it will block the game until it accepts a connection. Receiving and sending a packet will also block the thread until a packet is arrived or a packet is sent successfully.

### Software requirements mapping

This component handles the following requirements:

1. SRS-REQ-004
2. SRS-REQ-005
3. SRS-REQ-006
4. SRS-REQ-007

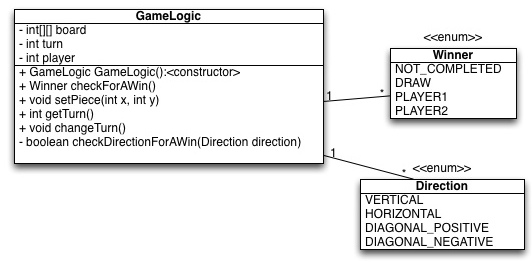
## Logic [Eren]

Repeat the pattern for each component.

### Component interfaces

Describe the interfaces of the component and input output data

### Component design description



### Workflows and algorithms

GameLogic Algorithm

initialize the game

initialize the turn

while the game is not over

     let the player (wrt the turn) pick a square

     switch the turn

Is Game Over Algorithm

for all directions

if 3 cells of the direction are occupied by the same player

return true

return false

### Software requirements mapping

This component handles the following requirements:

1) SRS-REQ-001

2) SRS-REQ-002

3) SRS-REQ-003

# COTS Identification

No commercial library, other than the standard Java v1.7 library, is used.