iSnake
Intelligent Multiplayer Snake

Open Software Competition – LOCUS 07/08
What is iSnake?

- is the variant of snake game popular among cell phone users
Features of iSnake

- Multi player feature
- Computer controlled intelligent opponents
Components of iSnake

- iSnake Client Application
- Autonomous Intelligent Opponent Application
- iSnake Game Server
- Game Server Manager @ sourceforge.net
iSnake Client Application

Diagram:
- Network
- Client Encoder/Decoder
- Client Network Interface
- Game Controller
  - Game Field Matrix
  - User Interface Components
  - Game Field Canvas
  - Input Handler
Components of iSnake

- iSnake Client Application
- Autonomous Intelligent Opponent Application
- iSnake Game Server
- Game Server Manager @ sourceforge.net
Two path finding algorithms have been developed:

- Blackmamba
- Viper

The Input Handler of iSnake Client Application is replaced by the module implementing Blackmamba or Viper
Autonomous Intelligent Opp.
 Components of iSnake

- iSnake Client Application
- Autonomous Intelligent Opponent Application
  - iSnake Game Server
  - Game Server Manager @ sourceforge.net
iSnake Game Server

Network

Server Encoder/Decoder

Server Network Interface

Server Core

Virtual Game Field

Player Info. Manager

Random Number Pool

Status Server

request / response
Components of iSnake

- iSnake Client Application
- Autonomous Intelligent Opponent Application
- iSnake Game Server
- Game Server Manager @ sourceforge.net
iSnake GSM@ SF.net

website visitor

request http://isnake.sf.net

probe each entry in gameservers.xml

no response
remove the entry from gameservers.xml

well formed XML response
update the entry in gameservers.xml

display web site
join existing game server

start Java Web Start App. that connects to specified game server

add new entry to gameservers.xml

host new game server
start Java Web Start App. that creates a new game server and connects to it
Components of iSnake

✓ iSnake Client Application

✓ Autonomous Intelligent Opponent Application

✓ iSnake Game Server

✓ Game Server Manager @ sourceforge.net
Performance of Game Server

- Local Network
- Homogeneous LAN
- Heterogeneous LAN

Performance evaluation parameter

- Response Time
Local Network

2 players

Response time (ms)

Keypress Event id

player: abhishek response as server
player: jitendra response as client
Local Network

3 players

![Graph showing response time in milliseconds for three players with different line styles and markers indicating server and client responses.](image-url)
Local Network

4 players

![Graph showing response time (ms) for 4 players with different event IDs.](image-url)
Homogeneous LAN

2 players

Response time (ms)

Keypress Event id

player: abhishek response as server (wlink)
player: suraj response as client (wlink)
Homogeneous LAN

3 players

Response time (ms)

Keypress Event id

- player: abhishek response as server (wlink)
- player: bibsta response as client (wlink)
- player: lakesh response as client (wlink)
Heterogeneous LAN

3 players

Response time (ms)

Keypress Event id
Performance of intel. opp.

Performance evaluation parameters:

- Path Length
- Turn Around Time
Performance of intel. opp.

Path Length

Turn Around time (ms)

(Source, Target) coordinate pair id

Viper

Blackmamba
Performance of intel. opp.

![Graph showing Turn Around Time for Viper and Blackmamba.

- **Y-axis (Turn Around time (ms)):**
  - Values range from 0 to 225.
  - Specific points highlighted include 0, 25, 50, 75, 100, 125, 150, 175, 200, 225.

- **X-axis:**
  - Labeled as (Source,Target) coordinate pair id.
  - Values range from 0 to 8.

- **Legend:**
  - Blue line with label: Viper
  - Red line with label: Blackmamba

The graph illustrates the Turn Around Time for two different models, Viper and Blackmamba, across a range of (Source,Target) coordinate pair ids.
Source code contains full code documentation conforming to Javadoc standards.

Both path finding algorithms have been fully documented with illustrations.

The protocol devised for communication between game server and clients has also been documented.

All documents available at iSnake's Doc. Repo.  
http://isnake.sf.net/docs
Project Management

- iSnake code managed using subversion – a version control system
- Collaboration on project docs (prototype design, project plan, TODO list, etc) done using WIKI
- JUnit tests were developed to test modules before integration
- All the project management resources were provided by sourceforge.
Why Snake game?

Simplicity !
http://isnake.sourceforge.net

Thank You