1   2   3   4

I.

[1].   [1],

[2].

.

[3],   [4]

[4]   .

'

[5].

'

.

[6].

[6].

'

[3].

'   [6].

'

---
1   , hcilab@ cheonan.ac.kr
2   , dcson@ cheonan.ac.kr
3   , ssken@ cheonan.ac.kr
4   , jinwoo@ yonsei.ac.kr

/

.

,

(Conceptual Model)   .

.

.

, HCI

,

.

(Conceptual Model)   .

.

II.

II- 1.

.[7].

,   ,   ,   ,

.

.

(   )   ,

.

[7].

.

.   ,

,   ,

.

,

/

[7].

.

II-2.

II-2-1.

(Experience) [8][9][10]. 'EA' < >

'
. ' ' < >
' .
' ' < X>
.
'
' ' < >
.

[8][9][10].

[9].

[8]. 'EA' <FIFA>

.
'
.

'
. <FIFA>

?
<FIFA>

? <FIFA>

. <FIFA>

'

/

.

< >

.

'

. < >

. < >

' .

. (Safety)

[8] [10].

.

.

[Property 1]

.

II- 2- 2.

[11] [12] [13].

[14].

'

.

.

[15].

2 .

' [16] ' (Player)

(AI) (Peer- Player)

[16]. 'EA' <2002 FIFA WorldCup KoreaJapan>

한국게임산업개발원

/

AI

,

. AI

. , ,

< > .

,

.

(Player)

(Peer- Player) .

AI

, AI .

AI .

[17] .

.

.

'NC Soft' < >

ID Password .

ID Password < > .

.

.

(Player Character)

,

.

,

.

.

.

2

/

'

.

.

[Property 2]   (AI)

.

II-2-3.

?   ?

[2] [10] [18].   '   '   <   >

. 'ESP/Kodansha'   <   >   PS2

'

'3DO'   <   2003>

.

'

AI

.

?

(Path Constraint)   (Operator)

(Problem Space)   (Search)   [19]   (Problem
Solving)   [19].   '   '
<   :   >   '

.

'   (Mission)

'   .

.

'

.

/

.

.

.

.

'   '   <   :   >   "First Strike,
Into The Flame, Higher Ground, The Hunt for Tassadar, Choosing Sides, Into The
Dark, Home Land, The Trial of Tassadar, Shadow Hunters, Eye of The Storm"

.

(Play)   [20][21].

(Game Map)

[16][17][18].   '

'   <   :   >   ,

'   '

. 'EA'   <2002 FIFA WorldCup KoreaJapan>
,   ,   ,   2002

.   ,   '

<   >, <   >, <   >   ,

'   .

,   ,   '

<   :   >   "   (First Strike)"

(Meet Fenix at Antioch),   (Fenix must survive)
(Destroy the zerg base)   .

.

(Problem Space)   (Initial State)
(Goal   State)
(State)   ,

[19].   '

'   <   :   >   ,

/

,

(Initial State)   ,

(Goal State)   .

(State)   ,

.

,   (Operator)   [19][20].

'   '   <   :   >   SCV,   ,

'   '

.

[8][16][18].

'   '   <   >   SCV

50M   ,   (DropShip)

8   .

.

(Feedback)   [8][18].

<   >

,

.

,   ,

,   ,   ,

.   .

(Path Constraint)

(Operator)   (Problem Space)   (Search)

,

.

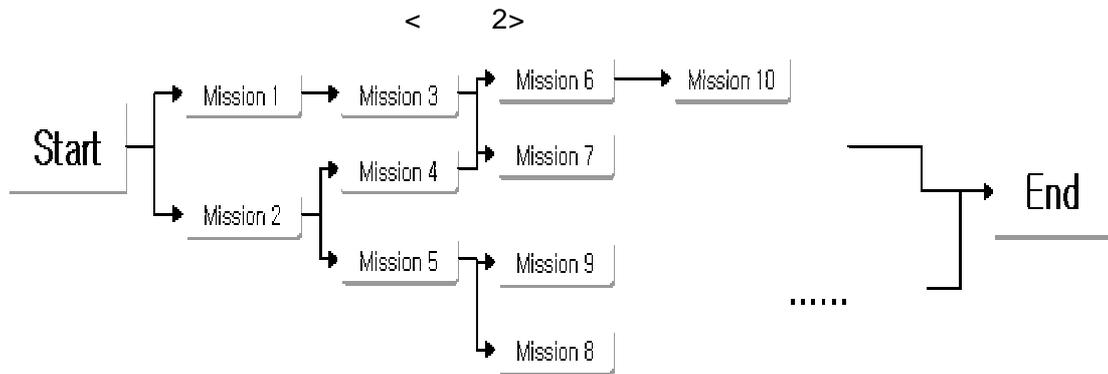/   ?

.

[Property 3]   ,
                    ,   ,
                                                                    .

        II- 3.

                        3   .

                                                                                        AI

                                        .

            ,   ,   ,

                                                                                            ,

                        .   ,

                                                                            .

[Definition]   ,   ,   ,

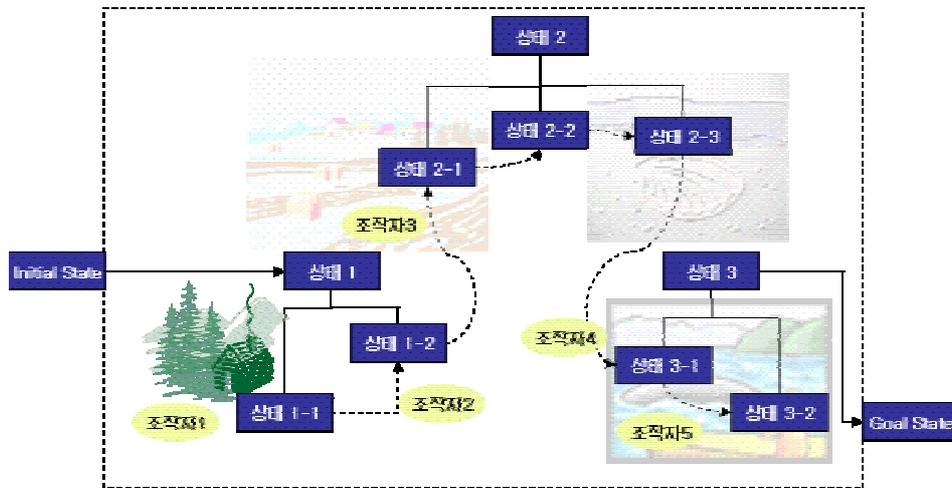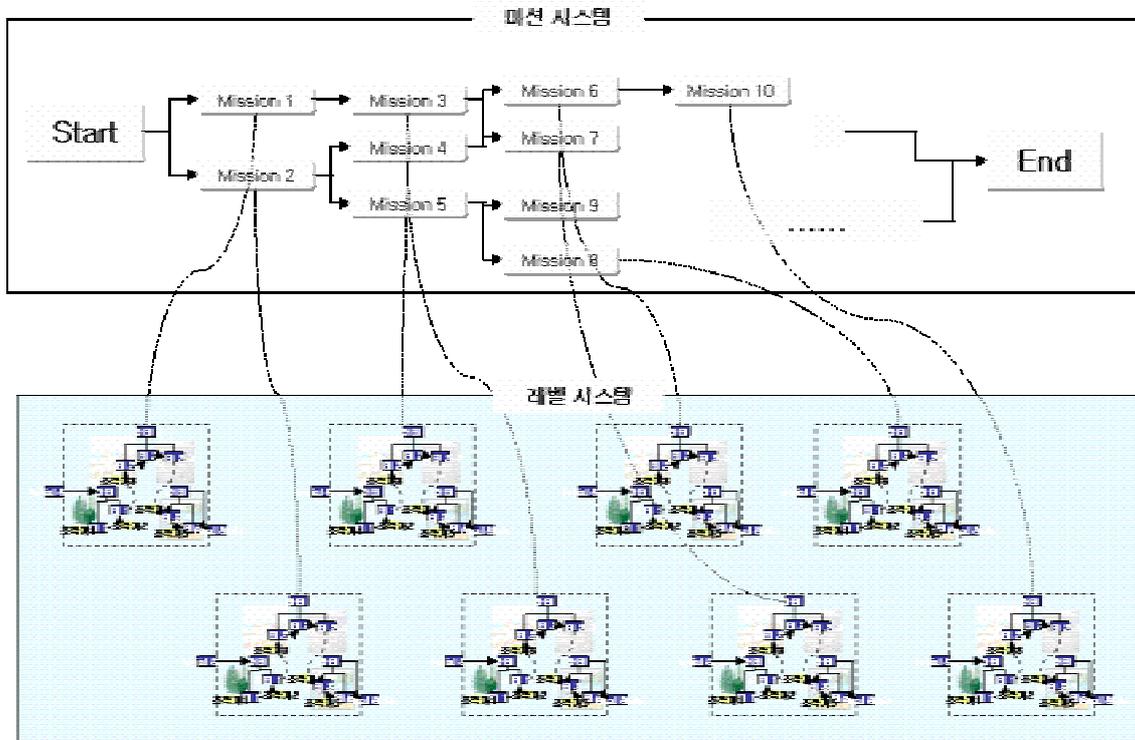   AI

                                                                ,

                                        .

III.

        III- 1.

                                                    .

                                                                        ,

            ?

/

.

,   ,   ,   ,

.

,

.

,

(Conceptual Model)   [1   ].

<   1>

III- 2.

.

[18].

[17].

"   "   <Command & Conquer: Red Alert 2>

Red   Sawn   .

.

.

,

/

.

,   ,

.

Hostile
Shore   .

[17] [22] .

,

.   ,

.

,

[17] [22] [23] .

(Mission
System)   [2   ] .

<   2>

III- 3.

.

[19] [21] [24] .

[19] [24] .

(Level)   [3   ] .

<   3>

(Level)

[17] [19] [25] [26] .   A   ,

,   1,   ,

,

1   ,   1   .

A   2   3   .

,

.   B   .

A   B   ,

.   3

한국게임산업개발원

/

'

3   4   .

4

.   B   A
.   '   '

.

[25] [26] .

<   :   >   "Boot Camp, Wasteland, Back water Station,
Desperate Alliance, The Jacobs Installation, Revolution, Norad II, The Trump Card,
The Big Push, New Gettysburg, The Hammer Fall"   '
'   '   .

[4] .

<   4>

/

III- 4.

.

'   '

.

1

.

'   '   .   '   (Start)'   ' (The
End)', '   (Win)'   '   (Fail)'

.

'

'

.

.

'

.

5

.

'

(Current State)

.

.

.

.

.

／

，

.

<　　　5>

미션 시스템

레벨 시스템

판정 시스템

III-5.　　　(Agent)

"　　　　"　　　　　　　　　　　　<　　　　　　　　　　　>

.

.

. [27] [28].　　　　　　　"Eidos"　　　<　　　　>

'　　　　　　　　'

.　　"　　　　　　　　　　　　　"　　　<

3>　　　　　　　　　　　　　　　　　　　　　　　　Jonnie

'　　　　　　'　　　　　　　　　　　　　　　　　　　　　　　　.

<　　　　　:　　　>

(Commander)　　　　　　　　　　　.

(Avator)

(Actor)　　　　　　　　　　　　　　　　　(Agent)　　　　[

6　].

/

<   6>   (Agent)

III- 6.

.
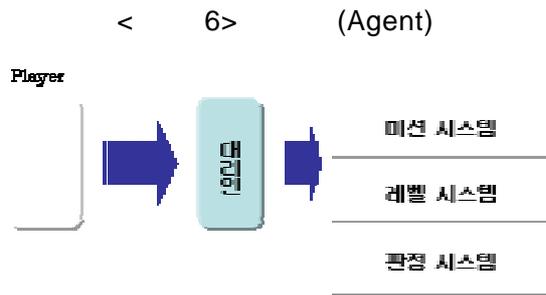
(Install)

(Uninstall)   ,

,

,   .

[7   ].

<   7>

III- 7

[7   ].   (Interface)

[15] ,

한국게임산업개발원

/

[15] [29] .   7

4   .

                                                    /

                                                    .

            ,   ,   ,

                                                             .

      .

                                                    ,

                                                                      .

                                                          ,

                                                                            .

                                        ,   ,

                            .

                                                                    .

                                              ,   ,

            .

<   7>
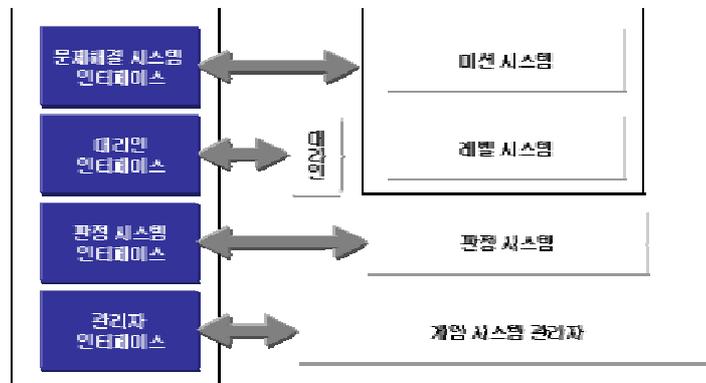
III- 8.   (Artificial Intelligence)

                            (AI)   [8   ].

                                        [30] .

                                         ,

                                                        [30] [31] .

  "   "   <   4>

                              .

                                                              .

                    ,

                                    .

                        <   8>

인공지능

인터페이스 / 대리인 / 미션 시스템 / 레벨 시스템 / 판정 시스템 / 게임 시스템 관리자 / 지각 시스템 / 인지 시스템 / 의사결정 / 학습 / 운동 시스템

                                    3   .

                        .   ,

                            .

                                                ,

                        .

한국게임산업개발원

/

IV.

?

IV- 1.

IV- 2.

한국게임산업개발원

/

.

?

(Problem Solving Theory)

.

(Game Theory)   (Decision Making)

.

.

,

.

,   ,

.

IV-3.

.

.

.

,   .

,

.

,   ,

/

.

.

.

IV- 4.

.

.

,

.

.

.

,

?

(Identity)

.

.

IV- 5.

.

.

,

.

.

한국게임산업개발원

/

IV- 6.

.

,

,

,

.

,

.

2

.

,

.

,

.

HCl

.

HCl

.

.

2D 3D

.

.

.

.

,

.

/

IV- 7.

V.

3

/

< >

[1]   (2002), *2002   *,

[2]   (2002. 1. 26), "   336   ",   ,
     http://www.etimesi.com/news/detail.html?id=200201250256
[3]   (2000),
       ,
[4]   (2001), "   ", *2001
                     ,   , pp. 1- 7
[5]   (2002), "   ", *2002
                     ,   , pp. 269- 276
[6]   ,   (2002), "   ",   ,
                , pp. 11- 15
[7]   (1993),   ,
[8] Crawford C (1984), *Art of Computer game design*, McGraw- Hill
[9] Richard Rouse (2000), *Game Design Theory & Practice*, Wordware
[10] Costikyan G. (1994), *I have no words & I must design*, British Role Playing
     Journal of Interactive Imaginativeness, Vol. 2,
     http://www.crossover.com/~costik/nowords.html
[11] John Scott Lewinski (1999), *Developer's guide to Computer Game Design*,
     Wordware
[12] Crawford C. (1987), "The Interaction Circuit", *Journal of Computer Game
     Design*, Vol 1(10),
      http://www.erasmatazz.com/library/JCGD_Vol.ume_1/Three_Levels_of_Intera
     ction.html
[13] Crawford C. (1987), *The Level of Interaction*, Journal of computer game
     design, Vol. 1(1),
http://www.erasmatazz.com/library/JCGD_Vol.ume_1/Three_Levels_of_Interaction
     .htm
[14] Laurel B.(1993), Computer as Theatre, Addison- Wesley
[15] Preece J. (1994), "Human Computer Interaction", Addison- Wesley
[16] Andrew Rollings & Dave Morris (2000), *Game Architecture and Design*,
     Coriolis
[17] Marc Saltzman (1999), *Game Design Secrets of the sages*, Robert J. Brady.
     Co.
[18] Bob Bates (2001), *Game Design: The Art & Business of Creating Games*,
     Prima Publishing
[19] Newell & Simon (1972), Human Problem Solving, Prentice Hall
[20]   ,   ,   (2000), "
            ,   , vol 10(1),   , pp. 1 – 23
[21]   ,   ,   (2001), "
                          LISREL   ",   , Vol 11(3), pp. 1-
     21
[22]   Bryce   Koike   (1997),   "Addictive   Games",   http://www- cs-
     students.stanford.edu/~amitp/Articles/AddictiveGames.html
[23] Tim Ryan (1999), "The Anatomy of a Design Document, Part2", *Gamasutra*,

http://www.gamasutra.com/features/19991217/ryan_01.htm

[24]   13   (2000),   ,

[25] Tim Ryan (1999), "Beginning Level Design, Part 1: Level Design Theory",
     http://www.gamasutra.com/features/19990416/level_design_01.htm

[26] Tim Ryan (1999), "Beginning Level Design, Part 2: Rules to Design By and
     Parting Advice",
     http://www.gamasutra.com/features/19990423/level_design_01.htm

[27] Toby Gard (2000), "Building Character", Gamasutra,
     http://www.gamasutra.com/features/20000720/gard_pfv.htm

[28] Harvey Smith (1999), " Player Character Concepts",
     http://www.gamasutra.com/features/19991108/smith_01.htm

[29] Ernest Adams (2001), "Replayability, Part 2: Game Mechanics", Gamasutra,
     http://www.gamasutra.com/features/20010703/adams_pfv.ht

[30] Thomas Dean, James Allen & Yiannis Aloimonos (1995), *Artifical
     Intelligence:Theory and Practice*, Addison Wesley

[31] steve Woodcock (1999), "Game AI: The State of the Industry", Gamasutra,
     Vol   3:   Issue   33,
     http://www.gamasutra.com/features/19990820/game_ai_01.htm

한국게임산업개발원