

“PERANCANGAN FUZZY SUGENO UNTUK NPC GAME BOXING SIMULATOR BERBASIS KAMERA KINECT”

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ABSTRAK

Perkembangan dunia teknologi saat ini berkembang sangat pesat, termasuk teknologi pada dunia *game*. Salah satu teknologinya yaitu permainan berbasis kamera kinect, dalam permainan berbasis kamera kinect ini pemain tidak perlu menggunakan alat permainan berupa *joystick* ataupun *keyboard* dan *mouse* untuk bermain. Kamera kinect memiliki fitur *skeletal tracking* untuk melacak sendi-sendi dari ujung kepala sampai ujung kaki pada tubuh manusia sehingga pemain dapat menggunakan tubuhnya sendiri sebagai alat bermain. *Game* yang dibuat yaitu *boxing simulator* dengan tujuan agar permainan ini dapat merasakan olahraga tinju yang mirip dengan aslinya. Pembuatan *game* menggunakan aplikasi Unity 3D sebagai *game engine*. Pembuatan perilaku NPC menggunakan metode Fuzzy Sugeno. Pengujian dilakukan dengan melihat perilaku NPC yang disesuaikan dengan *fuzzy rules*. Indikator yang digunakan yaitu jumlah nyawa NPC dan jumlah nyawa pemain. Pengujian dilakukan sebanyak 25 pengujian dengan indikator nyawa pada NPC yaitu 10, 30, 50, 70, dan 90 sedangkan indikator pada nyawa pemain yaitu 20, 40, 60, 80, dan 100. Didapatkan hasil bahwa perilaku NPC pada *boxing simulator game* sesuai dengan *fuzzy rules* yang dibuat. Tingkat kesesuaian perilaku NPC dengan *fuzzy rules* sebesar 100%. NPC *boxing simulator game* menggunakan fuzzy sugeno cukup membuat permainan ini menjadi lebih interaktif dan kompetitif.

Kata kunci: kamera kinect, NPC, unity 3d, *boxing simulator*, Fuzzy.

“THE CONSTRUCTION OF FUZZY SUGENO FOR NPC BOXING SIMULATOR GAME KINECT CAMERA-BASED”

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ABSTRAC

The advancing of technology nowadays is growing so rapidly, including technology used in games. One of the technologies is a Kinect camera-based game. In this game, the players do not need to use tools, such as a joystick, keyboard, or mouse to play. A Kinect camera has a skeletal tracking feature to track the joints of humans from head to toes, so players can use their own bodies as the playing tools. The game, which had been made, is a boxing simulator. Through this game, the players can experience boxing as the real boxing. The game was made by multiplatform game engine Unity 3D application The Fuzzy Sugeno method was used for making the NPCs' behaviors. The test is done by looking at the behavior of the NPC that is adjusted to the fuzzy rules. The indicators used are the number of NPC lives and the number of player lives. The tests were carried out as many as 25 tests with the life indicators on the NPCs 10, 30, 50, 70, and 90 while the indicators on the players' lives were 20, 40, 60, 80, and 100. The results show that the behavior of the NPC in the boxing simulator game is in accordance with the fuzzy rules created. The level of conformity of NPC behavior with fuzzy rules is 100%. The results of the NPCs' behaviors test using Fuzzy Sugeno were in accordance with the Fuzzy rules behaviors which had been made, so it is enough to make this game more interactive and competitive.

Keywords: *Kinect camera, NPC, Unity 3D, Boxing simulator, Fuzzy.*

DAFTAR ISI

HALAMAN JUDUL	Error! Bookmark not defined.
HALAMAN PENGESAHAN	Error! Bookmark not defined.
HALAMAN PERNYATAAN ORISINALITAS JUDUL.....	Error! Bookmark not defined.
HALAMAN PERSEMBAHAN	Error! Bookmark not defined.
ABSTRAK.....	1
ABSTRAC	2
KATA PENGANTAR	Error! Bookmark not defined.
DAFTAR ISI.....	3
DAFTAR GAMBAR.....	5
DAFTAR TABEL.....	7
BAB I PENDAHULUAN.....	Error! Bookmark not defined.
1.1 Latar Belakang	Error! Bookmark not defined.
1.2 Rumusan Masalah	Error! Bookmark not defined.
1.3 Tujuan dan Manfaat	Error! Bookmark not defined.
1.3.1 Tujuan	Error! Bookmark not defined.
1.3.2 Manfaat	Error! Bookmark not defined.
1.4 Batasan Masalah.....	Error! Bookmark not defined.
1.5 Metodologi Penulisan.....	Error! Bookmark not defined.
1.5.1 Tahap Persiapan	Error! Bookmark not defined.
1.5.2 Tahap Perencanaan	Error! Bookmark not defined.
1.5.3 Pengumpulan Data	Error! Bookmark not defined.
1.5.4 Analisa dan Pengolahan Data	Error! Bookmark not defined.
1.5.5 Pemecahan Masalah.....	Error! Bookmark not defined.
1.6 Sistematika Penulisan.....	Error! Bookmark not defined.
BAB II TEORI PENUNJANG	Error! Bookmark not defined.
2.1 Penelitian Terdahulu	Error! Bookmark not defined.
2.2 Dasar Teori.....	Error! Bookmark not defined.
2.2.1 Kamera Kinect	Error! Bookmark not defined.
2.2.2 <i>Skeletal tracking</i>	Error! Bookmark not defined.
2.2.3 <i>Boxing</i>	Error! Bookmark not defined.
2.2.4 <i>NPC (Non-Player Characters)</i>	Error! Bookmark not defined.
2.2.5 Fuzzy.....	Error! Bookmark not defined.

2.2.6	<i>Unity 3D</i>	Error! Bookmark not defined.
BAB III PERANCANGAN SISTEM.....		Error! Bookmark not defined.
3.1	Perancangan Sistem.....	Error! Bookmark not defined.
3.1.1	Blok Diagram.....	Error! Bookmark not defined.
3.1.2	<i>Flowchart</i> Sistem.....	Error! Bookmark not defined.
3.2	Elemen formal <i>game</i>	Error! Bookmark not defined.
3.3	Perancangan NPC (<i>Non-Player Characters</i>)	Error! Bookmark not defined.
3.4	Analisa Kebutuhan	Error! Bookmark not defined.
3.4.1	Kebutuhan <i>Software</i>	Error! Bookmark not defined.
3.4.2	Kebutuhan <i>Hardware</i>	Error! Bookmark not defined.
3.5	<i>System Requirements Boxing Simulator Game</i>	Error! Bookmark not defined.
BAB IV HASIL PENELITIAN DAN ANALISA		Error! Bookmark not defined.
4.1	Keanggotaan Metode Fuzzy Sugeno	Error! Bookmark not defined.
4.2	Pemrograman NPC.....	Error! Bookmark not defined.
4.3	Pengujian Fuzzy pada NPC.....	Error! Bookmark not defined.
BAB V PENUTUP		Error! Bookmark not defined.
5.1	Kesimpulan.....	Error! Bookmark not defined.
5.2	Saran.....	Error! Bookmark not defined.
DAFTAR PUSTAKA		Error! Bookmark not defined.

DAFTAR GAMBAR

Gambar 2. 1 Kamera Kinect	Error! Bookmark not defined.
Gambar 2. 2 Sendi Pada Manusia	Error! Bookmark not defined.
Gambar 2. 3 Sarung Tinju.....	Error! Bookmark not defined.
Gambar 2. 4 Pelindung Kepala	Error! Bookmark not defined.
Gambar 2. 5 Sepatu Tinju	Error! Bookmark not defined.
Gambar 2. 6 Celana Tinju	Error! Bookmark not defined.
Gambar 2. 7 NPC Tinju	Error! Bookmark not defined.
Gambar 2. 8 Sistem Inferensi Fuzzy	Error! Bookmark not defined.
Gambar 2. 9 Diagram Alur Proses Fuzzy	Error! Bookmark not defined.
Gambar 2. 10 Logo Unity	Error! Bookmark not defined.
Gambar 3. 1 Blok Diagram Hardware	Error! Bookmark not defined.
Gambar 3. 2 Blok Diagram Software	Error! Bookmark not defined.
Gambar 3. 3 <i>Flowchart</i> Sistem	Error! Bookmark not defined.
Gambar 3. 4 Variabel Nyawa NPC.....	Error! Bookmark not defined.
Gambar 3. 5 Variabel Nyawa Pemain.....	Error! Bookmark not defined.
Gambar 4. 1 Keanggotaan Nyawa NPC	Error! Bookmark not defined.
Gambar 4. 2 Keanggotaan Nyawa Pemain	Error! Bookmark not defined.
Gambar 4. 3 Hasil Pengujian 1	Error! Bookmark not defined.
Gambar 4. 4 Hasil Pengujian 2	Error! Bookmark not defined.
Gambar 4. 5 Hasil Pengujian 3	Error! Bookmark not defined.
Gambar 4. 6 Hasil Pengujian 4	Error! Bookmark not defined.
Gambar 4. 7 Hasil Pengujian 5	Error! Bookmark not defined.
Gambar 4. 8 Hasil Pengujian 6 Bertahan.....	Error! Bookmark not defined.
Gambar 4. 9 Hasil Pengujian 6 Menyerang	Error! Bookmark not defined.
Gambar 4. 10 Hasil Pengujian 7	Error! Bookmark not defined.
Gambar 4. 11 Hasil Pengujian 8	Error! Bookmark not defined.
Gambar 4. 12 Hasil Pengujian 9	Error! Bookmark not defined.
Gambar 4. 13 Hasil Pengujian 10	Error! Bookmark not defined.
Gambar 4. 14 Hasil Pengujian 11	Error! Bookmark not defined.
Gambar 4. 15 Hasil Pengujian 12	Error! Bookmark not defined.
Gambar 4. 16 Hasil Pengujian 13	Error! Bookmark not defined.
Gambar 4. 17 Hasil Pengujian 14	Error! Bookmark not defined.
Gambar 4. 18 Hasil Pengujian 15	Error! Bookmark not defined.

Gambar 4. 19 Hasil Pengujian 16	Error! Bookmark not defined.
Gambar 4. 20 Hasil Pengujian 17	Error! Bookmark not defined.
Gambar 4. 21 Hasil Pengujian 18	Error! Bookmark not defined.
Gambar 4. 22 Hasil Pengujian 19 Menyerang	Error! Bookmark not defined.
Gambar 4. 23 Hasil Pengujian 19 Bertahan	Error! Bookmark not defined.
Gambar 4. 24 Hasil Pengujian 20	Error! Bookmark not defined.
Gambar 4. 25 Hasil Pengujian 21	Error! Bookmark not defined.
Gambar 4. 26 Hasil Pengujian 22	Error! Bookmark not defined.
Gambar 4. 27 Hasil Pengujian 23	Error! Bookmark not defined.
Gambar 4. 28 Hasil Pengujian 24	Error! Bookmark not defined.
Gambar 4. 29 Hasil Pengujian 25	Error! Bookmark not defined.
Gambar 4. 30 Grafik Aturan Fuzzy	Error! Bookmark not defined.

DAFTAR TABEL

Tabel 3. 1 Aturan Fuzzy.....**Error! Bookmark not defined.**

Tabel 4. 1 Tabel Kondisi NPC**Error!**
Bookmark not defined.

Tabel 4. 2 Tabel Presentase Serangan NPC.....**Error! Bookmark not defined.**