PENGENDALIAN *PROTOTYPE* KURSI RODA ELEKTRIK

MENGGUNAKAN *ELECTROOCULOGRAPHY* (EOG)

DENGAN   METODE *FUZZY LOGIC CONTROL*

LAPORAN TUGAS AKHIR SISTEM KOMPUTER

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DENGAN METODE *FUZZY LOGIC CONTROL*

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ABSTRAK

Electrooculography (EOG) merupakan sinyal yang dikeluarkan oleh otot mata karena adanya perbedaan potensial listrik antara bagian depan dan belakang mata. Dengan memanfaatkan *electrooculography* (EOG) dirancanglah sebuah *prototype* kursi roda elektrik yang dikendalikan oleh *electrooculography* (EOG) dengan menggunakan metode *fuzzy logic control* sehingga *prototype* kursi roda elektrik dapat bergerak maju, mundur, berhenti, berbelok ke kiri dan berbelok ke kanan. Pada penelitian ini kecepatan *prototype* kursi roda elektrik pada saat maju, mundur bernilai konstan sedangkan untuk berbelok ke kanan dan ke kiri menggunakan metode *fuzzy logic control*. Berdasarkan hasil penelitian, *prototype* kursi roda elektrik dapat bergerak maju dan mundur dengan tingkat keberhasilan sebesar 97,33 %. Pada saat pengujian berbelok ke kanan dan berbelok ke kiri, set point yang digunakan sebesar 11,3˚, 16,7˚, 21.8˚, 26,7˚ dan 30,9˚. Untuk gerakan ke kanan diperoleh nilai rata-rata *error* antara hasil program terhadap *set point* sebesar 2,26 %, Sedangkan untuk gerakan ke kiri diperoleh nilai rata-rata *error* antara hasil program terhadap *set point* sebesar 4,07 %.

Kata kunci : *Electrooculography*, *fuzzy logic control*, *prototype*, *set point*

PROTOTYPE ELECTRIC WHEELCHAIR CONTROL
USING ELECTROOCULOGRAPHY (EOG) WITH
FUZZY LOGIC CONTROL METHOD

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ABSTRACT

Electrooculography (EOG) is the signal released by the muscles of the eye due to a difference in electrical potential between the front and the back of the eye. By utilizing Electrooculography (EOG), a prototype electric wheelchair is designed and controlled by Electrooculography (EOG) using fuzzy logic control method so that the prototype electric wheelchair can move forward, backward, stop, turn left and turn right. In this research, prototype electric wheelchair's speed when it moved forward and backward is constant, while making right and left turn is using the method of fuzzy logic control. Based on the result of the research, the prototype electric wheelchair can move forward and backward with the success rate of 97.33%. At the time of testing right and left movement, the set point used are 11,3°, 16,7°, 21.8°, 26,7° and 30,9°. For movement to the right is obtained average value of error between the program's result against set point of 2.26%, While for the movement to the left the average value of error between the program's result against set point of 4.07%.

Keywords : *Electrooculography*, *fuzzy logic control*, *prototype, set point*