

ABSTRAK

RANCANG BANGUN KENDALI UNMANNED AERIAL VEHICLE (UAV) MENGUNAKAN JOYSTICK

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Pada zaman yang modern ini, perkembangan teknologi ini sangat pesat, salah satunya teknologi dalam bidang penerbangan dan pertahanan negara. Teknologi yang sangat gencar-gencarnya untuk di kembangkan adalah *unmanned aerial vehicle* atau UAV. UAV merupakan wahana terbang pesawat tanpa awak yang dikendalikan di *ground* digunakan untuk misi tertentu seperti pemetaan suatu wilayah, foto udara, pengintaian musuh saat kondisi perang dan masih banyak misi yang memanfaatkan UAV.

Perancangan pergerakan *Aileron*, *Rudder*, *Elevator*, dan *Throttle* pada UAV dirancang menggunakan *Joystick* sebagai input data yang kemudian diolah oleh Arduino Atmega 2560 dan dikirimkan melalui *transmitter* EZUHF kemudian diterima oleh *Receiver* EzUHF untuk menggerakkan motor servo *Aileron*, *Rudder*, *Elevator*, dan *Throttle* pada UAV

Perbandingan Hasil keluaran *Dutycycle* gelombang PWM dan Data *Joystick* menunjukkan perbedaan yang signifikan yaitu *Aileron kanan* 72,9% nilai ADC *joystick* = 744. *Aileron kiri* 29,4%, nilai ADC *joystick* = 300. *elevator atas* 64,8%, nilai ADC *joystick* = 662. *Elevator bawah* 32,4 %, nilai ADC *joystick* = 331 *rudder kanan* 37,8%, nilai ADC *joystick* = 386. *rudder kiri* 30%, nilai ADC *joystick* = 321. *Throttle On* 74,2%, nilai ADC *joystick* = 189. *Throttle Off* 44,4%, nilai ADC *joystick* = 133.

Kata Kunci : *joystick*, *Aileron*, *Elevator*, *Rudder*, *Throttle*, *unmanned aerial vehicle*

**DESIGN AND DEVELOPMENT OF UNMANNED AERIAL VEHICLE (UAV)
REMOTE CONTROL USING JOYSTICK**

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ABSTRACT

In this modern era, the development of this technology is very rapid, one of them is technology in the field of aviation and national defense. Technology that is very incessant to develop is an unmanned aerial vehicle or UAV. UAVs are a flight vehicle controlled by unmanned ground aircraft used for certain missions such as mapping an area, aerial photography, enemy reconnaissance during war conditions and many missions that utilize UAVs.

The design of the Aileron, Rudder, Elevator, and Throttle movement on the UAV is designed using the Joystick as input data which is then processed by the Arduino Atmega 2560 and sent through the EZUHF transmitter then received by the EzUHF Receiver to drive the Aileron, Rudder, Elevator and Throttle servo motors on the UAV

Measurement results of waveform PWM and Data Joystick Duty cycle shows a significant difference, namely right Aileron 72.9% Joystick value ADC = 744. Left Aileron 29.4%, joystick ADC value = 300. Lift up 64.8%, joystick ADC value = 662 Lift under 32.4%, ADC joystick value = 331 right steering wheel 37.8%, joystick ADC value = 386. left steering wheel 30%, joystick ADC value = 321. Throttle On 74.2%, joystick ADC value = 189 Throttle Off 44.4%, Joystick ADC value = 133.

Keywords : joystick, Aileron, Elevator, Rudder, Throttle, unmanned aerial vehicle

