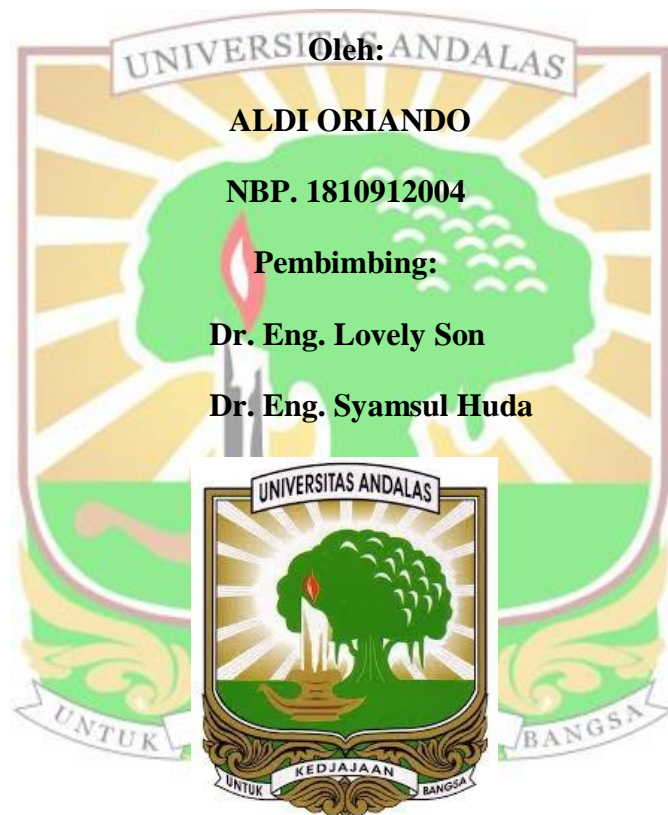


TUGAS AKHIR

**PEMBUATAN DAN PENGUJIAN LAUNCHER PESAWAT TANPA AWAK
MENGUNAKAN SISTEM PELEPASAN OTOMATIS**

Diajukan Sebagai Salah Satu Syarat Menyelesaikan Pendidikan Tahap Sarjana



Oleh:

ALDI ORIANDO

NBP. 1810912004

Pembimbing:

Dr. Eng. Lovely Son

Dr. Eng. Syamsul Huda

DEPARTEMEN TEKNIK MESIN

FAKULTAS TEKNIK

UNIVERSITAS ANDALAS

PADANG

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ABSTRACT

Unmanned Aerial Vehicle (UAV) is technology that very useful for this era. When natural disaster happened, UAV is used to monitoring that condition. There are several types of take off methods are used for this UAV. The take-off method using a catapult launcher or bungee launcher is the best. This is because the methods does not require a large area to take off. In addition, this methods does not require large costs and safer. Problem happen when the pilot is late or to long to push the throttle when the UAV release from the launcher, so crash is always happen because of this. For this reason, a launcher design is needed to be strong, can take off autonomously, and adjustment the angle of attack the UAV (AOA). This launcher is made for an effective release mechanism. In this research, the construction and testing of the launcher with automatic release system structure was carried out. And then, Tests are conducted by varying the length of the rubber to get the maximum thrust on the UAV and get the long lasting rubber age. After that, testing were done to get the right angle of attack value (AOA). In this study, some data were selected, such as the material data used, namely St 37 steel which can withstand the pulling force of the rubber when taking off the plane. The test is carried out by comparing the simulate and experimental values. Based on the results obtained, it can be seen that the simulated values are not much different from the experimental values. The length of the rubber based on the result from the experimental testing is 1.75 meters. In the angle of attack the aircraft test (AOA), the best angle value is 16° . After the above tests have been carried out, the auto take off UAV using autonomous system is done. In this test, the UAV can fly according to the mission that has been set by using the parameter settings on the controller. Motor get turn when the acceleration UAV reaches in 2 m/s^2 and the motor delay time is set at 0 seconds.

Keywords : UAV, Fixed wing, take off, Autonomous, launcher