



DEVELOPMENT OF UAV MULTICOPTER AS A VEHICLE FOR TRANSPORTING DISASTER LOGISTICS

Syahriza

Abstrac

- The Aceh region, which is located on a fire route that contains volcanoes, was destroyed in 2004 by the shaking of the earthquake and tsunami. Until now, large and small earthquake vibrations still occur frequently. Some time ago Aceh was hit by a tectonic earthquake which destroyed buildings in Pidie Jaya area. Because the area affected by the earthquake was so extensive, so many places and locations that were badly affected by the earthquake were late to be known. The use of the Drone in monitoring the area and delivering logistics in the affected area should be given attention. The Aceh region has a mountainous area and a transformation path that is still limited in the deep areas causing delays to reinforcements. Unmanned aircraft systems (UAVs) which are usually widely used by the military, government, and commercial companies, are now widely used by the general public. But most drones only have a small carrying capacity and limited range. In this paper will be presented the design of a Drone with an integrated monitoring and assistance system using a moving (Ground Station) control center. The Quadcopter Drone will be used to monitor and record disaster-affected areas and send light equipment, medicines and food logistics. The drone will use a large capacity Brushless DC Motor Outrunner and be equipped with an ArduCopter control system from the APM 2.8 or PixHawk type, FPV camera and infrared camera. Thus the aircraft can fly far day and night and guided by GPS from satellites.

Aceh Earthquake and Tsunami



Palu Earthquake



Objective

The objective of this research is to Develop Multicopter UAV for Disaster Logistic Transportation

The drone will pick up and drop logistic from one start point to target point.

Drone Logistics Market

The market will be **ACCELERATING** growing at a **CAGR** of over

14%



INCREMENTAL GROWTH
\$1.2 bn

2017

2022

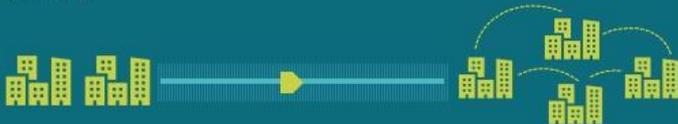


The year-over-year growth rate for **2018** is estimated at

5.21%



The market is **HIGHLY FRAGMENTED** with quite a few players who occupy the market share



64%
of the growth will come from the **AMERICAS**

One of the **KEY DRIVERS** for this market will be the high adoption of drones in healthcare and relief logistics



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GLOBAL DRONE TRANSPORTATION AND LOGISTICS MARKET 2018-2022

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Current Research

Perpanjangar x Google Transl x drone tracker x M Ivo - syahriza x propeller cad x SolidWorks Pa x drone logistic x Boeing un x http://scholar x

← → ↻ <https://www.freightwaves.com/news/boeing-unveils-cargo-drone> ☆ G ☰

Boeing unveils drone capable of carrying 500-pound cargo

January 12, 2018 Brian Straight



SEARCH

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FREIGHT WAVES SONAR ACTIONABLE FREIGHT MARKET DATA & INSIGHTS

THE DAILY INFOGRAPHIC

A Driver's Perspective: Who have you assisted in moving?

The following answers were pulled from the 2018 King of the Road survey from Atlas Van Lines. 475 truck drivers responded to the survey. Some questions exceed 100% due to multiple answers.

What are some of the most interesting types of people you have assisted in moving?

 58% Everyday People	 40% Military	 39% Pro-Athletes
 17% Actors & Actresses	 16% Singers & Musicians	 15% Scientists

ASEAN IVO Forum 201....doc ASEAN IVO Forum 201....doc 05-17-2013_ComplexR....zip Show all downloads...

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Aerial Robotic

Syiah Kuala University



Controller



Lithium Ion Polymer Battery
Powers the UAV. This type of battery typically come in 3S or 4S packs depending on your ESC and Motor combination.



Power Module
Powers the Pixhawk



Battery Warning
Provides an audio alarm when the battery power goes below a pre defined level.



Telemetry
Telemetry provides a secondary means of controlling the UAV. It can allow you to work with powerful ground station software (on a tablet or laptop PC) in real time. The telemetry modules transmit 915MHz (USA) or 433MHz (Europe).



USB Cable



Tablet
A tablet or laptop PC connects to the pixhawk via telemetry radio allowing the operator to use powerful groundstation software to control the UAV.



Gimbal
A gimbal stabilizes the camera in real time and usually hangs underneath the UAV's frame.

Camera
A small camera such as the GoPro is ideal for use with a brushless gimbal.



Brushless gimbal controller

GPS & Compass
The GPS and Compass are housed externally which means that the directional arrow must face pointing to the nose of the UAV.



Back
Left
Right
Forward



Transmitter

The transmitter is the primary link between the operator and the UAV. It typically transmits at 2.4GHz. A transmitter with 8 or more channels is sufficient to allow the operator to use most of the features on Pixhawk and control a gimbal.



Motor 1
Motor 4
Motor 3
Motor 2

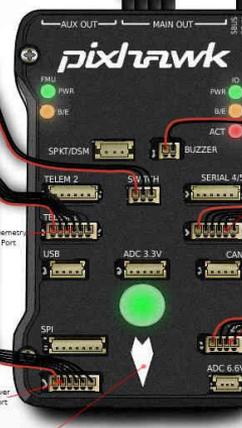
4 in 1 ESC
The electronic speed controller (ESC) allows the Pixhawk to control the speed of each individual motor.

If a motor is spinning in the wrong direction simply swap any two bullet connectors.



Servo Connections
Pixhawk has a back up power supply provided by the BEC onboard the 4 in 1 ESC.

- Motor 1
- Motor 2
- Motor 3
- Motor 4



Buzzer
Provides audio signals that indicate when the UAV is doing.

DF13 to Servo cable



PPM Sum Receiver
Translates PWM signals that the Pixhawk can not read into PPM signals. An alternative is to purchase a PPM receiver which outputs a PPM signal by default.

Note
It is always best practice to twist wires together. This reduces interference.



Receiver

The receiver takes the 2.4GHz signals from the transmitter allowing the operator low latency control over the UAV.

High Torque Outrunner Motor

Perpan | Google | drone t | M ivo - sy | G propell | SolidW | drone l | Global | Global | Boeing | Jual 25 | Jual Ou

https://www.tokopedia.com/electroworks/25kw-120100-outrunner-brushless-motor-for-electric-paramotors?trkid=f%3DCa0000L000POWOS0Sh00Co0f☆

tokopedia Kategori Cari produk atau toko Semua Kategori Cari Keranjang Notifikasi Bantuan Toko

Beranda > Elektronik > Perangkat Elektronik... > Perangkat Elektronik... > 25KW 120100 Outrun..



25KW 120100 Outrunner Brushless Motor for Electric Paramotors

Ulasan
Transaksi Sukses Dari Transaksi

Rp 28.750.000

Bagikan

Jumlah

Catatan untuk Penjual (Opsional)
Contoh: Warna Putih, Ukuran XL, Edisi ke-2
0/144 karakter

Cicilan bunga 0% mulai dari Rp 1.197.917 [Bandingkan Cicilan](#)

Dilihat Terkirim Kondisi Baru Min. Beli 1 Asuransi Opsional

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electroworks
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Pesan Dibalas

Dukungan Pengiriman

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start | Jual 25KW 120100 O... | Microsoft PowerPoint ... | 5 Microsoft Office ... | IRONCAD - [Scene3] | Microsoft Office Pictu... | EN | 16:41

① 25KW 120100 Outrunner Brushless Motor for Electric Paramotors and Electric Go-karts with 22S 500A boat ESC

- 1) The firmware is upgraded recently
- 2) Two way communication while connection it with computer
- 3) Firmware can be upgraded by user
- 4) Motor cable can be inspected while connecting the power battery
- 5) Simply set function value by programming box or by PC via USB cable
- 6) Li-MH/Li-PO,Ne-Cd/Ne-Mh,LiFe battery can be used
- 7) Enable setting the voltage per cell for the point at which the controller's cut off circuitry engages.Li-MH/Li-Po from 2.0V-3.6V,Ne-Cd/Ne4-1.0V,LiFe from 2.2-2.8V
- 8) Reverse function,the delay time of reverse is adjustable.
- 9) The power of the motor forward/reverse can be set
- 10) Automatically detection the throttle route or can be set a fixed number by manual operation.
- 11) Auto cut off the power within 3 seconds if no radio signal
- 12) Timing setting may be adjusted(0-30)to suit the motor type.

Specifications :

MOTOR: MP120100

MAX POWER: 25KW

KV: 35KV,55KV,80KV,130KV,

TORQUE: 46Nm

MAX RPM: 8000

ESC: 22S 380-500A

MAX VOLT: 100 V

MAX CURRENT : 350A

CONTINUOUS CURRENT: 230A

SIZE: 120 mmx 120mm (without shaft)

STATOR: 60mm

WEIGHT (KG): 4

SHAFT: 12mm

ACCESSORY PACK: Yes

Design Logistic UAV

