## What goes on in your Naza Autopilot system? How is the Quad able to hold the position so accurately when you let go of the throttle? Can I make money with this Hobby?

In this quick course, I will give you the basics of flying a modern Multirotor and the technology that goes into making this equipment near perfect.

This will enhance your understanding of your RC model and will help you fly your precious equipment safely and more productively.

A quick glance of what we're dealing with:

All modern complex control systems, such as Naza, Century etc., use Dynamic Positioning, a mathematical modelling technique as part of their control functionality. The system contains a mathematical model, or description of the RC equipment's dynamics such as rotor configuration, thrust, payload etc. This is used to continually predict future equipment positions, headings and velocities. This data is continually compared with the corresponding measured values, allowing the computation of corrective thrust commands. A DP system is an example of an automatic Closed-loop control function. The mathematical model contains static data on the equipment's parameters, but is also an adaptive feature. The analogy is that of flying by hand. Although skilled at flying, an operator of the equipment will take five minutes or so to get the feel of the equipment and the environment after taking the controls. The DP system does the same, the mathematical model taking up to 5 minutes to fully adapt to the present environment and equipment's configuration. Subsequent to this period, the system will continually adapt to changes in the equipment or environment, just as an operator will adapt his flying to changing weather conditions. This 5 minute model build period or settling period must be allowed for in the setting-up procedure; until the model is fully complete the equipment may oscillate in position and/or heading. Controlling computers will, in modern equipments, be configured as part of a fully integrated local-area network covering all equipment control and monitoring functions and facilities .The controller facility may be provided by one processor operating alone or in more advanced equipment by an array of two, three or maybe more, in order to provide a level of redundancy. If two processors are provided, then one is on-line while the other acts as a back-up. If three are installed, then there exists the possibility of voting or triple-modular redundancy: one unit on- line and two back-ups. All critical computations are thus triplicated and compared; any discrepancy allows automatic indication and rejection of the errant unit.

Sounds complicated? Not if you can relate to all this with your actual flying experience. By understanding what goes on inside your multirotor's head, you can make better judgement and get more out of your baby every time. A commercial drone pilot in US makes around $150000 every year. This is what you get by converting your Hobby into your Profession. Online giant Amazon has decided to start its Prime service in India next year which involves Multirotors used to deliver your order at your doorstep. They will need qualified Operators here in India to manage and maintain their systems.

http://thediplomat.com/2014/08/amazon-will-test-drone-delivery-system-in-india/

A fine hobbyist is respectful of his hobby and committed to taking it to the next level within the boundaries of law and order. Dynamic Positioning is the essence of Multirotor and Drone industry. A report by Businessinsider.in Security Edition :

“ **We estimate that 12% of an estimated $98 billion in cumulative spending on aerial drones over the next decade will be for commercial purposes**.”

Drone Operators, Technicians and manufacturers will be in high demand in very near future.

I’ve taken the initiative to train my fellow hobbyist in the field of DP and flying on this forum. We will cover different modes of operation, their application and FAA guidelines. I believe that we in India have the potential to capture a big chunk of this market. I sincerely hope you guys will take part in this process and just maybe in future, we can be the first ones to open a UAV Academy here in India and train future professionals.

*“Once you have tasted flight, you will forever walk the earth with your eyes turned skyward, for there you have been, and there you will always long to return.”*

– Leonardo da Vinci

Abhishek Sharma
+91-801-7935648
vegadesgagnes@gmail.com
https://www.facebook.com/AerialSight