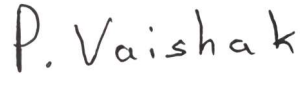
SRN: PES1PG22CS054

When imagining an aircraft, we mainly think of a pilot as the one controlling the aircraft in case of a manual one. In account of recent breakthroughs in Artificial intelligence (AI) and Machine Learning, now it is possible to have an aircraft completely controlled by AI. But, even in a human controlled aircraft, a flight control system exists to aid the pilot. Although the flight control system does most of the heavy lifting, it still needs a pilot to fully operate the aircraft. This type of flight control system is more of a flight assistance system. A true flight control system is one which does not need any human intervention during the operational phase of the aircraft. This type of system handles all the aircraft's operations including the take-off and landing. Although, a fully automatic aircraft exits mainly as smaller drones, it won't be long until autonomous aircrafts which can carry people to be available to the general public.

VTOLs benefit from these advancements in autonomous flight technology. As mentioned above, even in a manual aircraft a flight control system exists, which consider the movement of the flight, its orientation in air, its surroundings, etc. to make spontaneous and continuous decisions in order to maintain the balance of the aircraft at all times. A simple explanation of this can be done using a quadcopter. A quadcopter has four rotors to provide lift, in order to keep it in the air. Four rotors because they are the most stable design. Even though they are highly stable, that is only compared to other drones. In a quadcopter 2 of the 4 rotors turn clockwise and the other 2 turn anti-clockwise. This is done to keep the drone balanced during flight. Even with this, a human pilot can only keep the drone in air for a very short period of time; this is where the flight controller comes into picture. As the pilot gives directional commands to the drone, like left, right, up, down; the flight control system is continuously giving instructions to prevent the drone from crashing. Let's say the pilot is turning the drone left, a certain angle is set as threshold beyond which the drone doesn't turn.

Signature – Name – Date



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05/04/23