**Introduction**

A quadcopter, additionally called a quadrotor, is a multirotor system that is lifted and moved by four rotors. Quadcopters are named rotorcraft, rather than fixed-wing flying machine, because their lift is produced by a lot of rotors (vertically situated propellers). [1]

Quadcopters utilizes two sets of indistinguishable fixed pitched propellers; two clockwise (CW) and two counterclockwise (CCW). These utilizations free variety of the speed of every rotor to accomplish control. By changing the speed of every rotor, it is conceivable to explicitly produce an ideal absolute push; to situate for the Center of push both along the side and longitudinally; and to make an ideal all out torque or turning force.[2]

Quadrotors are structurally simple but uncontrolled aerial vehicles, which are very interesting and have been researched and developed, although the control systems are complex. In recent years, the interest shown on these vehicles has left behind the interest shown to manned aircraft. Quadrotors have many advantages over standard helicopters or manned aircraft. Some of these advantages; low production costs, the ability to add features according to need and eliminate the risk of the pilots in hazardous work environments [3]. In particular, quadrotors have been used in many areas, including hazardous and dangerous areas where people cannot dissolve. In civilian use, quadrotors are being used in areas such as hobby, agriculture, aerial photography and firefighting. In

military use, quadrotors are used in many areas such as determination of enemy forces, port and coast security, land search, surveillance, mine screening, long distance and high-altitude discoveries, spy communication, determination of radar systems [4]. It has attracted the attention of many researchers due to its success in search and rescue, exploration and security [1,5].

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