FINAL YEAR PROJECT REPORT

"Semi-Autonomous Quad-copter"

A PROJECT REPORT

Submitted by

1. Hafiz Farhaj Khan 111619-007
2. MansoorSaleem 111619-013
3.Ammar Khalid 111619-022
4. Danish Mushtaq 111619-103

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<u>APPROVED</u>

Project Advisor_____________

Director Projects _____________

SCHOOL OF ENGINEERING,
DEPARTMENT OF ELECTRICAL ENGINEERING
UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

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Declaration of Originality

Here it is reported that work and progression expressed in this report and undertaking is totally our own work and nothing in this report is matchingadhesive from some other sources.

Advisor Signature

FaranAwais Butt

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Group member's signature

Hafiz Farhaj Khan

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MansoorSaleem

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Ammar Khalid

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Danish Mushtaq

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Dedication:

The entire project is devoted to every solitary person who has helped us till now in our lives especially our parents, teachers, friends and our beloved Country Pakistan.

Abstract:-

We are working on the control/stability of quad-copter. But the problem we are facing which is, when we want to control the quad-copter we must need to communicate continuously with the transmitter channels otherwise quad-copter gets unstable and it self-start falling downwards to the ground . Due to this reason user must need to make changes in the quad-copter flying mode so that it could provide continuous smooth stability during flying. In this regard user must have to remain intact with quad-copter and analyze things precisely otherwise quad-copter may fall and damage.

So one question comes in our mind that what kind of flight controller will be suitable, which will balance our quad-copter so that we can achieve our propose. We must have to provide the interpretations from different sensors like GPS module, gyroscope, accelerometer, magnetometer and etc. to the microcontroller. Any external force including air force can interact with quad-copter and can make it unstable. For example force of gravity could come into play during quad-copter flying so it may fall rapidly towards the ground and can cause severe damage. I think this example is very worthwhile for understanding the problem mentioned above.

We are using sensor that will measure the distance from earth and try to maintain the quad-copter at some particular height using PID (Proportional, Integral and Derivative). A control system is developed which is try to maintain the height is called altitude hold principle. For the sake of horizontal position, we are using GPS which controls the horizontal position (x and y axis) of the quad-copter. User can give incremental points as input and quad-copter could try to maintain these incremental points and gets stable at desired height. Which is called navigation system of quad-copter.

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