**DECLARATION CERTIFICATE**

This is to certify that the work presented in the thesis entitled **“Quad-Copter”** in partial fulfillment of the requirement for the award of degree of **Bachelor of Computer Application** of Institute of Engineering & Management is an authentic work carried out under my supervision and guidance.

To the best of my knowledge the content of this thesis does not form a basis for the award of any previous Degree to anyone else.

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**CERTIFICATE OF APPROVAL**

The foregoing thesis entitled **“Quad-Copter”** is hereby approved as a creditable study of research topic and has been presented in satisfactory manner to warrant its acceptance as prerequisite to the degree for which it has been submitted.

It is understood that by this approval, the undersigned do not necessarily endorse any conclusion drawn or opinion expressed therein, but approve the thesis for the purpose for which it is submitted.

**(Internal Examiner) (External Examiner)**

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**Abstract**

A Quad-Copter is a multirotor having four motors. The remote of the Quad-Copter is designed using android technology. Users need to install the application on their android phone to control the quad copter with the help of Wi-Fi technology. We have made the quad-copter with a Wi-Fi interface.

The design of the quad-copter is based on a typical ‘X’ model. On the base of the quad-copter, a power source (2200mAh Li-Po battery), an Arduino UNO (ATMEGA328 micro-controller), a Wi-Fi module (ESP8266-01) and a Gyroscope (MPU6050) have been placed. 1 ESC (Electronic Speed Controller) and 1 brushless motor (1000kv, 12v) with a propeller (10X4.5) is mounted on each of the four arms. The power for the ESCs are distributed on the base plate and a connection is drawn; controlled with a diode and a 22k ohms resister; to power the UNO board. The receive/transmit pins of the ESP8266-01 and data pins of the ESCs are connected to the digital pins of the UNO. The data pins of the Gyroscope are connected to the analog pins of the UNO. A LED is used to signal the end of calibration of ESP and Gyroscope. An Arduino sketch has been developed to accept the controller signals and interpret them to a data string of micro-seconds. This data string is sent to each of the four ESCs in a sequence through dedicated methods for each of the movements. The data received from the Gyroscope is used to calculate the offset and correct it using PID algorithm.

The basic controls used in the application for controlling the Quad-copter are : Throttle is used to control the speed of the motor, Roll is used to control left and right movement , Pitch is used to control up and down movement, Yaw is used to move the quad copter in a side direction.