5.Conclusion and Recommendations

This paper explored one of the most promising applications of UAV in the field of communications: The use of aerial networks to increase network connectivity. To this end, A Raspberry Pi board was used and appropriately configured and equipped with required hardware to work as a wireless access-point on board a drone.

The experiment conducted in this study confirmed that a device such as a Raspberry Pi can in fact be used to extend wireless network while on board of a drone.

There were some limitations to this study which proven to be inefficient. One was that not every Raspberry Pi is able to be set up for this application. During the implementation at first the Raspberry Pi 2 was used which this does not have a network chip installed on the board. Due to this an external USB WIFI adapter was used, although this it was still not possible to set up correctly as the WIFI adapters are to be used to connect to a WIFI and not act an as Access point and provide a service. At this point where further research was done is where I found out that the Raspberry Pi 3 b+ should be used as it has a chip onboard and simplifies the setup.

Taking all these factors into consideration, one can conclude that the implementating a Raspberry Pi as a wireless access point while attached to a drone can be found useful to acceptable level at incident scenes, however due to the complexity and time restriction this area merits further investigation for improvements. Some recommendations could include:

* Testing the system with an external antenna added to the Raspberry Pi board to try to increase the speed and range from where the network can be reached.
* Using the lighter of the Raspberry pi the Zero w board to decrease the carry weight for the drone in order to increase the flight time.
* Making the setup multi-functional by adding a second network adapter to the raspberry Pi and set it up to work as a WIFI extender.