**Extending wireless networks using drones**

**Introduction**

Network connectivity was Initially seen as to be an optional commodity, but nowadays network connectivity has become to be considered an essential utility. There is a growing number of devices (e.g., smart phones, computers, wearables, etc.) that requires to be almost continuously connected to a network because of the advent of the Internet of Things (IoT) paradigm, On the other hand, drones have drawn the interest of the research community. Due to the strong efforts made to improve their performance, e.g., miniaturization, energy efficiency, etc., Drones have become a useful tool widespread in different disciplines. These devices, also known as UAV, provide important roles in areas such as military, logistics, environmental monitoring, and/or rescue activities. For instance, drones eliminate the need of human presence to accomplish dangerous tasks and hence the risks that some of these activities entail are dramatically reduced.

The researched question

As already stated, network connectivity is an essential to where even with today’s advanced world of wireless access there are still multiple areas which wireless services are unavailable or insufficient. This is mostly common at incident scenes where the existing cellular infrastructure may also be knocked out of service for periods of times in areas hit by disasters. This is where drones can come in use to be deployed in these areas to provide network connectivity to those who are in need. Therefore, my research question will be “Are drones efficient enough to be used as portable access points”

Motivation

What got me interested in this subject Is the fact that the lack of network connectivity is a more common problem than expected. Cellular networks should maintain their operational status even after (mild) disaster scenarios, however this not always possible. When this happens, a major problem arises when a key part of the network infrastructure is destroyed or unavailable. The increase of popularity in drones also what got me interested in this subject, Seeing that drones are being used for multiple scenarios such as videography and other commercial uses gave me an idea to use it in the network industry.

Context of the research

My dissertation will start with the chapter about the background research about wireless networks as well as their aims. These consist of the description of raspberry pi and wireless networks, their types, advantages and disadvantages, Other studies which were compared and legal aspects. The next chapter will be looking at the specific protocols that will be used and the tools which are required to setup the experiment which will be explained in a step by step method. In the chapter after the findings and results are covered, this chapter will include how the actual experiment was implemented and what were the findings obtained from this experiment. Finally, the last chapter will be the conclusive chapter of my dissertation.