Chapter 4
Cyber Security Perspectives in Public Spaces:
Drone Case Study

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ABSTRACT

As the public use drones (aircraft that can operate semi or autonomous), sometimes referred to as unmanned aerial vehicles or automotive aircrafts, to ease daily people's lifestyles, there are cyber security threats and cyber-attacks that hinder public safety and privacy during the moments when these drones are used. Cyber threats are analyzed based on the commonly known approaches to evaluate the cyber perspective and its effect on the public. Public drones' cyber security hazards are well tested using the STRIDE approach connected with the considered threats. The evaluation is highly dependent on the accuracy of drone mission definition, potential intruders, social, and other human-related cases. This chapter therefore encompasses the most current studies focusing on possible intruders portrayed as critical when carrying out a cyber security assessment. A brief future direction to mitigate cyber-related threats as it entails the public are conclusively depicted.

INTRODUCTION

In a nutshell, drones are aircraft that operate with or without humans onboard. They were introduced mainly for military operations. However, their application was extended to political, social, and economic settings and it has impacted the public both positively and negatively (Majeed et al., 2021). This development came due to an advance of technology. The most common parts that make up the drone that results in the integration of other public needs include propellers, extra batteries, carrying case, propeller guard, landing pad, global positioning system, and autonomous flight modes, among others (Zhao et al., 2022).

Drones were first used in July 1849, and Austrians used them as flying objects. It was a simple balloon that was deployed for military reasons. Even though this isn't a drone, it was the first step toward the creation of a novel technology (Basan et al., 2021). Since then, different developments started in Austria in 1849, Britain in 1915, Kettering but was advanced in 1916. In the years 1937 through 1941, the USA introduced the Radio plane OQ2 drone. In 1973, two surveillance drones were introduced and used, i.e., IAV Scout and Mastiff. During the years 1990 to 2014, there was a need to have micro-and miniature drones, the dangerous use of drones was witnessed in 1986 using RQ2. In 2016, due to the increased developments in internet-enabling technologies, different drones were developed to fit several domains of the public (Abdelmaboud, 2021). For 2019 and 2020, the concept widened to underwater craft (these developments are presented in Figure. 1). However, due to the coronavirus pandemic that was enormous between 2019 to 2021, limited developments have been started in 2021 to date.

Figure 1. Drones generational development (1849 to 2020)
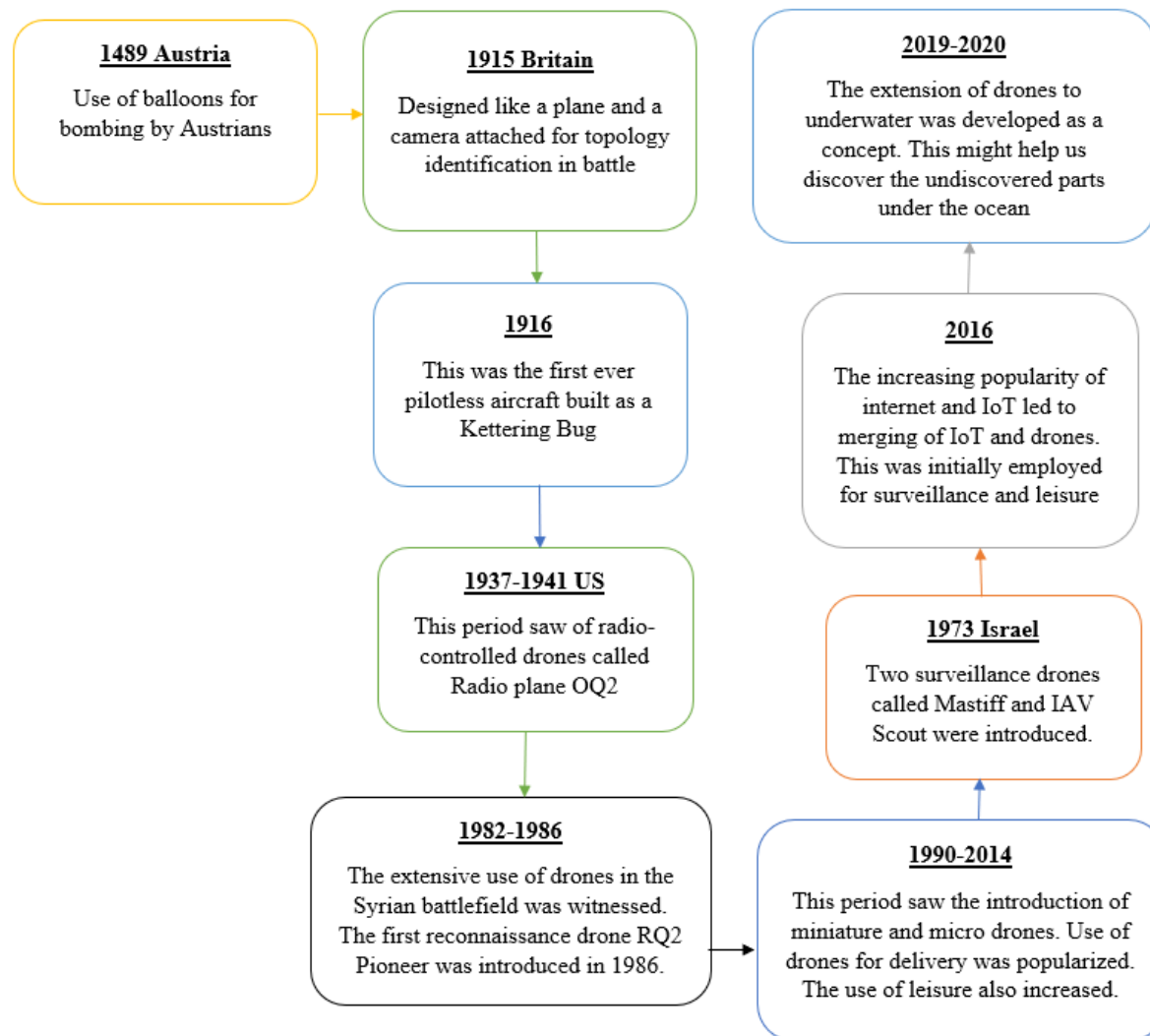
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