Assignment #2 – Introduction/Methodology Approach

The real time operating system (RTOS) is commonly used by product manufacturers to control their devices. It is small enough to run on hardware using as little as 25MHz processing speed and 64KB of memory. This allows the operating system to be used on specific microcontrollers that fit their design requirements or with off the shelf hardware such as a RaspberryPi Pico. However, any means of fuzzing other components of the device is limited. This process typically involves a thorough analysis of potential attack scenarios and the implementation of specific vulnerabilities that can be used to simulate real-world threats.

The objective is to identify and address security gaps in the system, so that the final product is more resilient against malicious attacks. To achieve this goal, a systematic approach to research and development is used, which involves a comprehensive examination of peripheral hardware used by the embedded devices, the development of generic drivers, and a thorough evaluation of the results. By creating an accessible firmware that allows easier modification and debugging, manufacturers or researchers will have greater flexibility securing their devices.