Projeto de Formatura – 2023

PCS - Departamento de Engenharia de Computação e Sistemas Digitais

Engenharia Elétrica – Ênfase Computação

Tema: IoT Forensics: Current State-of-the-Art and the Creation and Extension of a Forensic Tool

Introduction

The rise of the Internet of Things (IoT) brings about the need for effective IoT forensics, especially in the context of expanding smart home devices. Existing literature offers theoretical frameworks and practical procedures, but a notable gap exists in adapting to the dynamic challenges of evolving IoT environments. Current forensic methodologies lag behind the urgency to enhance investigative capabilities.

This work assesses current IoT forensic approaches, identifies gaps, and addresses them by developing and expanding a forensic tool.

Objectives

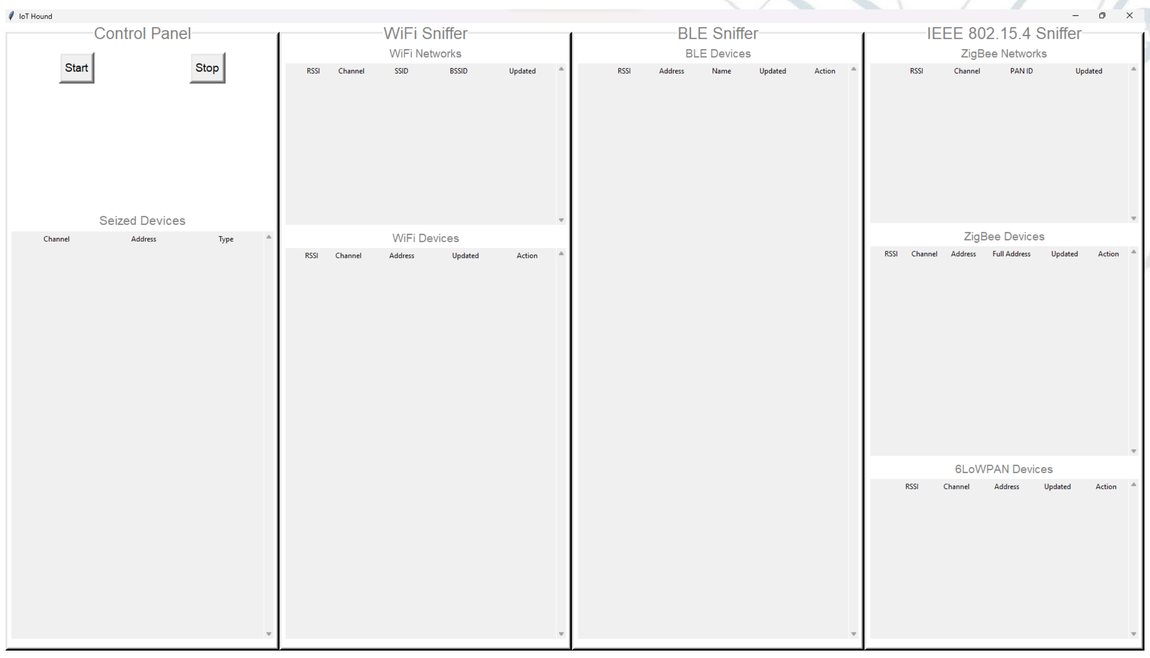
- Contributing to IoT computer forensics by exploring existing frameworks, procedures, and challenges, summarizing the state-of-the-art literature.
- Providing a user-friendly GUI tool to assist investigators in identifying IoT devices at crime scenes.

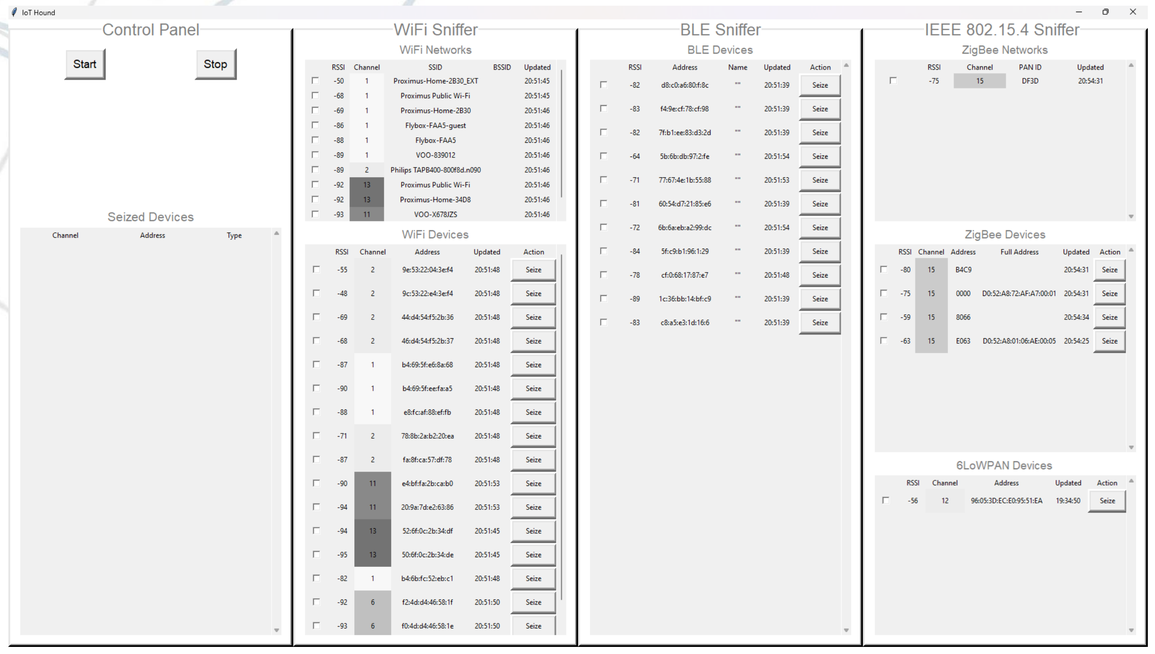
Methodology

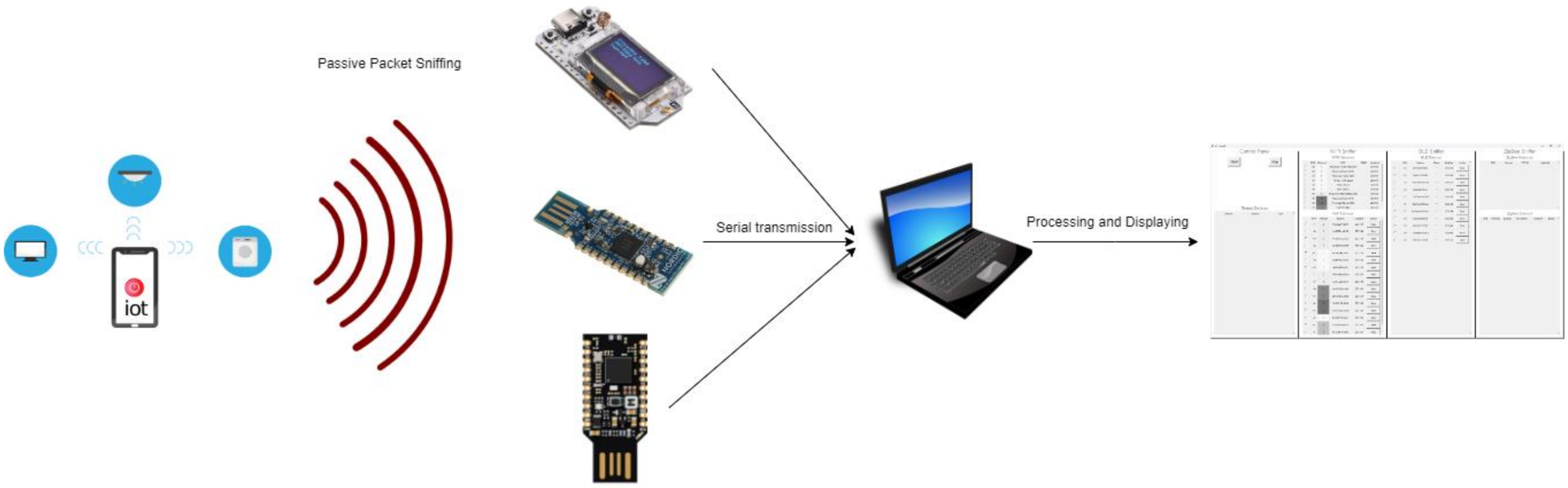
- General idea: create a tool to help investigators.
- Reviewing: summarizing the state-of-the-art and evaluating the existing methods.
- Problem: The localization of devices in a crime scene is important but there are no tools for it.
- Designing the software: Create a tool with a user-friendly GUI that is capable to locate devices from different protocols.
- Testing and Documentation: Tests were made to validate the software.

Results

- The software, capable of passively sniffing frames of IoT devices, was tested in scenarios like the real-world ones.
- It performed exceptionally well, enabling the detection of devices, and investigators can determine their location by analysing signal strength.







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