

ARDUINO IDE PHONE UNLOCKING, WIFI HACKING AND ANDRIOD HACKING

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Introduction:

In the current age of wireless technology, there is a growing need to understand, test, and secure wireless communications such as WiFi and Bluetooth. At the same time, real-time environmental monitoring is critical in hazardous or confined environments like sewage tunnels or industrial pipelines. This project integrates both functionalities in a compact, embedded system-based device that can monitor its surroundings and also act as a cybersecurity educational tool for ethical hacking. It combines **WiFi and Bluetooth packet capturing capabilities** with **IoT sensor integration**, offering both surveillance and communication-testing capabilities.

Objectives:

- To build a low-cost, portable device capable of capturing WiFi and Bluetooth packets.
- To enable long-range wireless data transmission using LoRa.
- To display real-time sensor and wireless status information on an OLED display.
- To integrate multiple modules like MQ135 (gas), DHT11 (temperature/humidity), and LoRa (SX1278) for environment sensing.
- To use ESP32 for controlling all modules and interfacing with WiFi/Bluetooth stacks.

Methodology:

This project uses the **ESP32 microcontroller** as the central brain, known for its dual-core processor, integrated WiFi and Bluetooth capabilities, and multiple GPIO pins.

The following modules are integrated:

- **ESP32 Dev Board** – central controller for all operations.
- **OLED Display (0.96")** – displays real-time data like gas levels, temperature, humidity, and WiFi signal activity.
- **LoRa SX1278 Module** – transmits collected sensor data over long range.
- **SIM800L GSM Module** – used for fallback communication via SMS alerts.
- **MQ-135 Sensor** – detects harmful gases like ammonia, NOx, benzene, CO2.
- **DHT11 Sensor** – reads temperature and humidity.
- **Bluetooth Sniffer** – using ESP32 built-in BLE scanning.
- **WiFi Deauthentication/Packet Monitor Tool** – ESP32 supports packet sniffing modes for ethical hacking labs.
- **Push Buttons** – used to switch between modes (sensor monitor, WiFi scan, Bluetooth scan, etc.).
- **Micro-USB Module** – for power input and programming.

All components are mounted and soldered on a general-purpose PCB board. Programs are written using the **Arduino IDE** with libraries for each sensor/module.

Result and Conclusion: The device successfully:

Scanned and displayed nearby WiFi networks and Bluetooth devices.

Sent gas, humidity, and temperature readings over LoRa.

Displayed all readings in real time on the OLED screen.

Supported multiple operational modes using push buttons.

Demonstrated basic **ethical hacking functionalities** (e.g., WiFi deauth, BLE scan) useful for cybersecurity education.

Conclusion: The prototype achieved its goal of creating a portable, multi-functional device that is both a learning platform for wireless security and a practical tool for environmental sensing.

Future Scope:

The future scope of this project includes:

Integration of GPS to track the device's live location during wireless scanning.

Adding SD card storage for offline packet logging.

Replacing DHT11 with more accurate BME280 sensor.

Developing a mobile app to receive real-time data via Bluetooth or GSM.

Upgrading the board to ESP32-S3 for better performance and AI edge capabilities.