Smart SOS Stun Gun: Empowering Women's Safety

This presentation explores the design and functionality of a stun gun equipped with a smart SOS feature, empowering women with enhanced safety.

SOS Components: Arduino Nano, HC-05, and Mobile Integration

Arduino Nano

The heart of the system, a powerful microcontroller, responsible for controlling the stun gun and Bluetooth communication.

HC-05 Bluetooth Module

Facilitates wireless communication between the Arduino Nano and the user's smartphone, enabling real-time Connectivity.

Mobile App

A custom-designed mobile app receives SOS signals, triggers SMS alerts, and provides a user-friendly interface.

Hardware Components and SOS Circuit Design

Booster Component

Provides powerfull flow of current to the 2 points

Switch/Main Switch

Controls the activation of the stun gun and the SOS signal transmission.

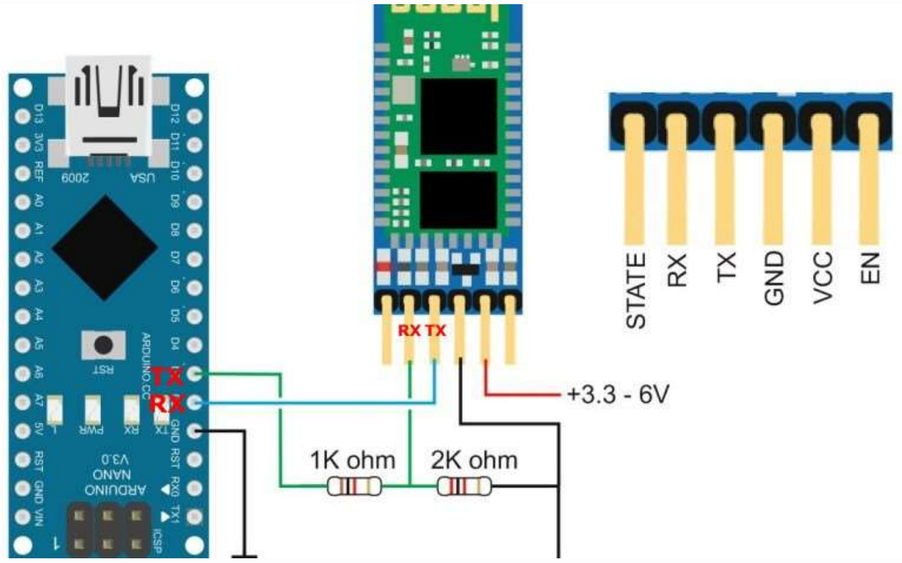
Battery

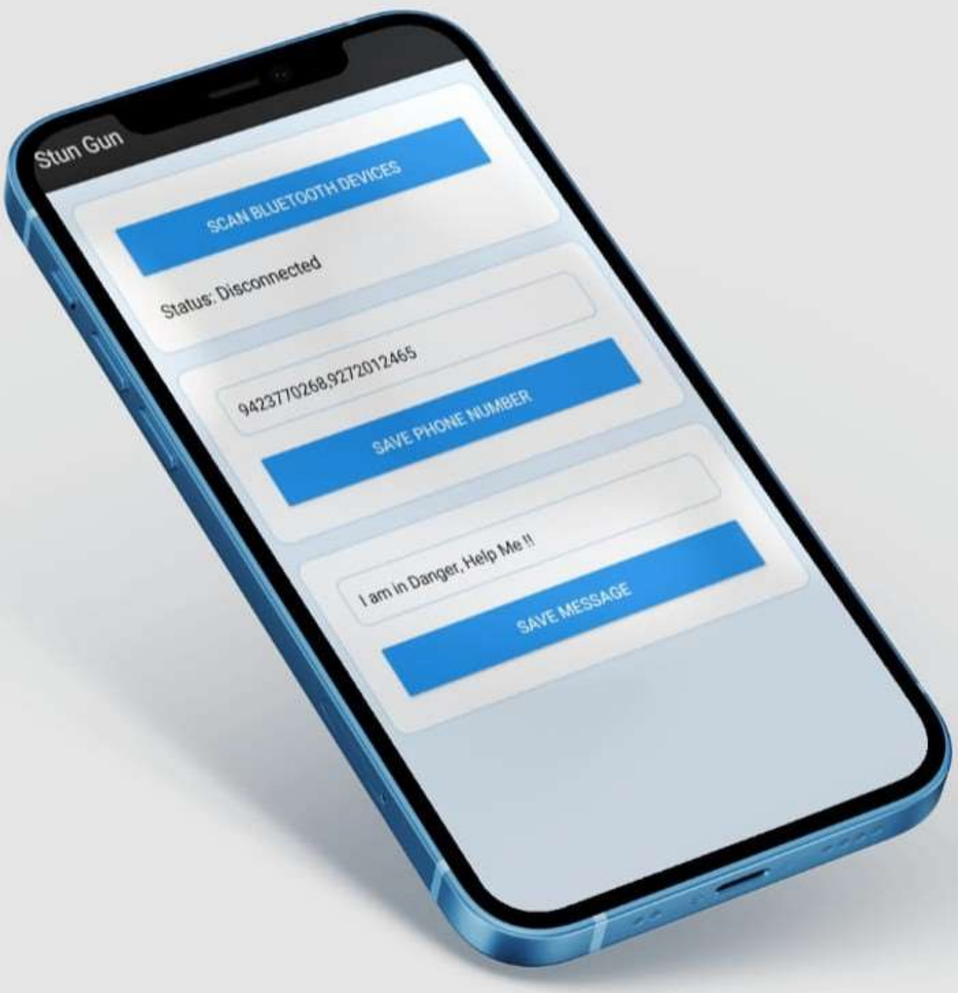
Provides power to the stun gun, enabling operation and SOS alerts.

Charging Module

It is used to charge the battery is appropriate current flow required

SOS CIRCUIT





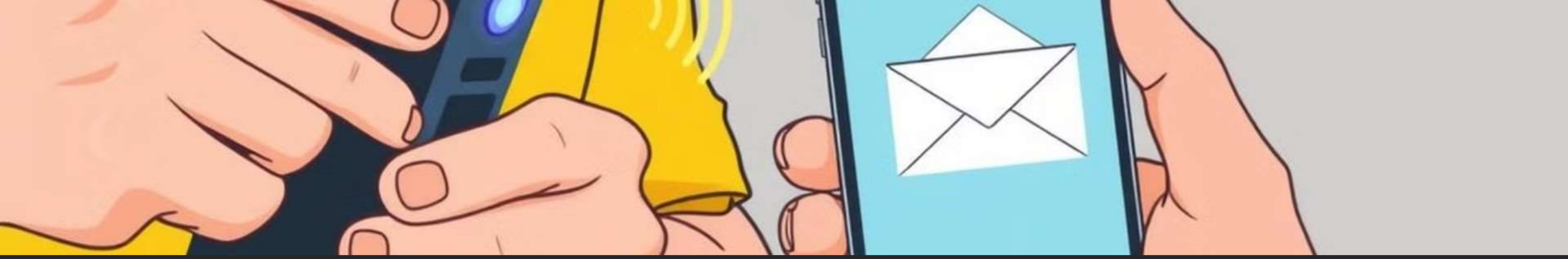
Software Architecture: Arduino Programming and Mobile App Development

Arduino

It is coded to control the stun gun's functions and communicate with the HC-05 Bluetooth module.

Mobile App Development

The app is created using android studio which receive specific signal from connected bluetooth module and starts SMS command



SOS Feature: From Button Press to Email Alert :-

Button Press

When the SOS button is pressed, the Arduino Nano sends a signal to the HC-05 Bluetooth module.

1

Bluetooth Transmission

The HC-05 module transmits the SOS signal to the user's smartphone via Bluetooth connection.

2

Mobile App Reception

The mobile app receives the SOS signal and triggers an immediate email alert.

3

Email Alert

A pre-configured email alert is sent to designated contacts, notifying them of the user's emergency situation.

4

Real-time Testing and Performance Analysis

99.9%

Success Rate

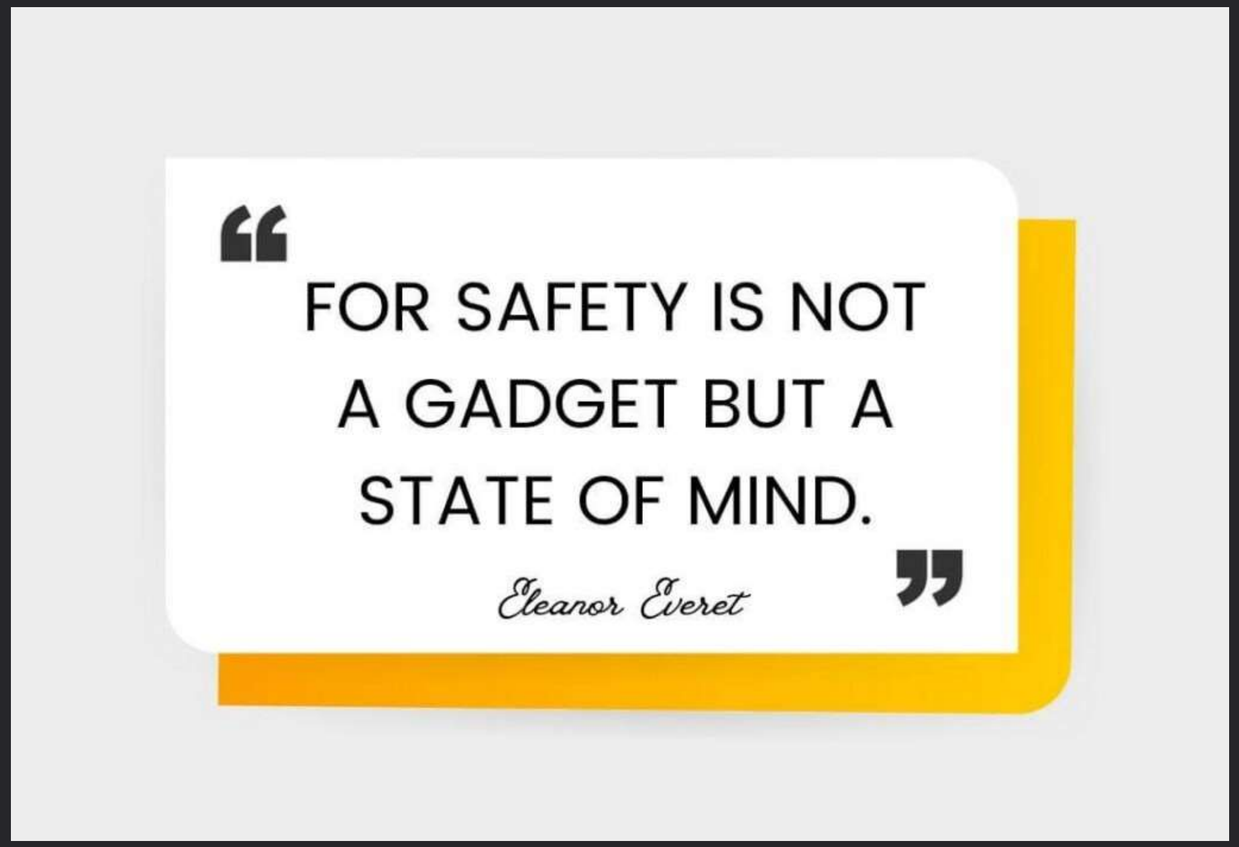
Thorough testing ensures reliable functionality and quick response times for every SOS alert.

3

Seconds

The average time it takes for an SMS alert to be sent after the SOS button is pressed.

Safety Considerations and Legal



Ethical Considerations

Promotes responsible use of the stun gun for self-defense and adheres to ethical guidelines.

Legal Compliance

Meets all relevant safety standards and legal regulations for stun gun devices.

Safety Features

Design incorporates safety features like a built-in fuse, anti-slip grip, and clear usage instructions.

Implementation Challenges and Future Enhancements

1

Integration with GPS

Adding GPS functionality to pinpoint the user's location during an emergency.

2

Multiple Emergency Contacts

Allowing users to add a list of emergency contacts for wider notification coverage.

3

Voice Recording Feature

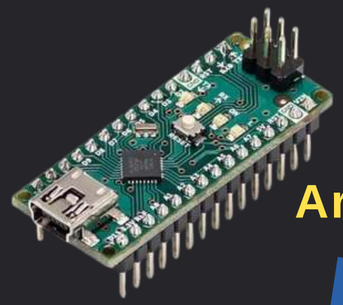
Enabling users to record a short audio message during an emergency, providing additional context.

4

Remote Control Function

Developing an optional feature to allow remote control of the device for increased security.

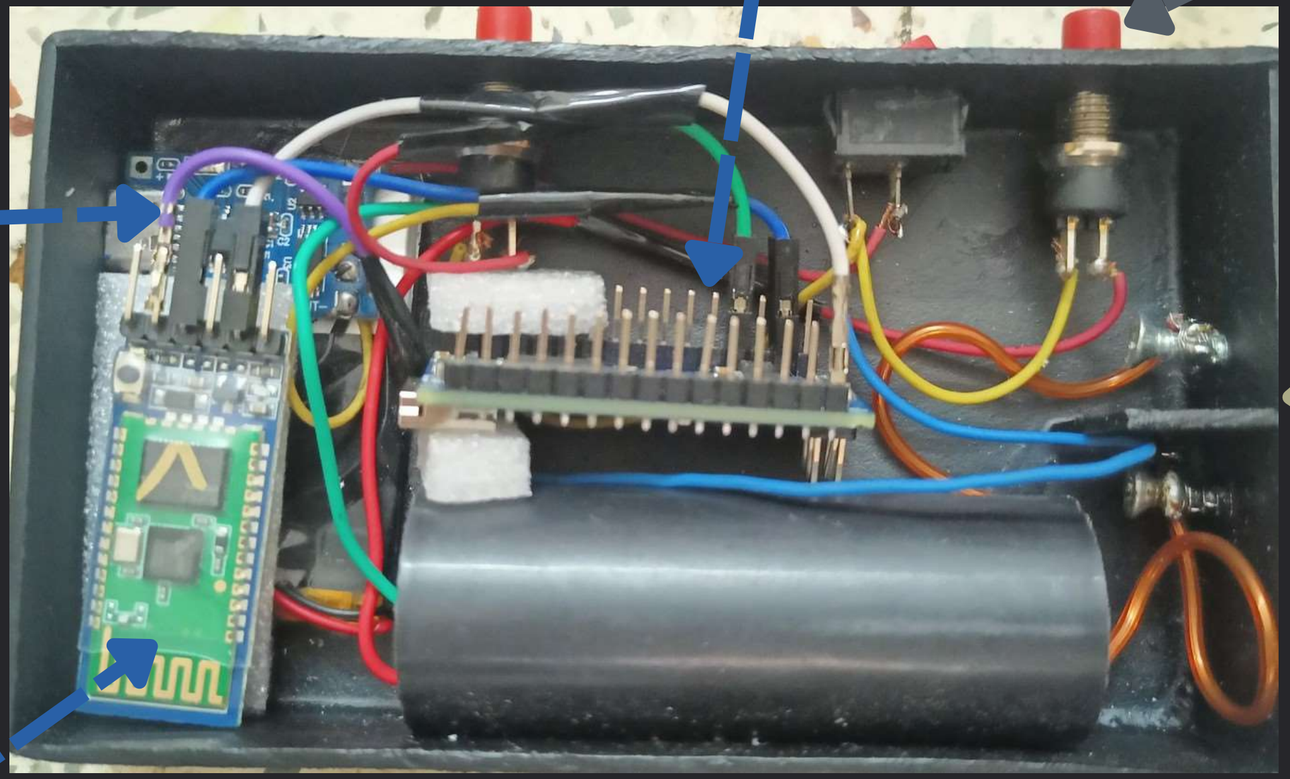
Inner Structure :-



Ardunio Nano

Push Buttons

Charging Module
Type C



Outputs

Bluetooth
Module Hc-05

Thank you

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