Full Wireless Communication Device
Project documentation.
Caio Dutra May 2023

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Preliminaries

- i Project overviewls
- ii Project objectives

The main objective is to send a $\bf 500kB$ file from a 100 m open-air gap with the battery powered device.

- iii Project scope
- iv Terminology and abbreviations

1 Introduction

[1]

- 1.1 Hardware Requirements
- 1.2 Firmware Requirements
- 1.3 Operation Flow
- 1.4 Device Usage
- 1.5 Limitations and Future Improvements
- 2 Schematics
- 2.1 Block Diagram
- 2.2 Circuit Diagrams
- 2.3 Components
- 2.4 Values and Parameters
- 2.5 Connections and Pinout

3 Printed Circuit Board

- 3.1 PCB Design
- 3.2 PCB Specifications
- 3.3 Component Placement/Layout
- 3.4 Trace Routing
- 3.5 Ground Planes
- 3.6 Tracks and Vias
- 3.7 RF Antenna

4 Firmware

4.1 Firmware Description

04Sub:FirmwareDescription

4.2 Firmware Architecture

04Sub:FirmwareArchitecture

4.3 Firmware Requirements

04Sub:FirmwareRequirements

4.4 Features and Algorithms

04 Sub: Features And Algorithms

4.5 Configurations and Parameters

04Sub: ConfigurationsAndParameters

4.6 Interfaces and Protocols

```
04Sub: InterfacesAndProtocols
       #include <iostream>
 1
 2
 3
       #include <Arduino.h>
4
5
       void setup() {
           Serial.begin(9600);
6
 7
           pinMode(LED_BUILTIN, OUTPUT);
8
       }
9
10
       void loop() {
11
           digitalWrite(LED_BUILTIN, HIGH);
12
           delay(500);
           digitalWrite(LED_BUILTIN, LOW);
13
14
           delay(500);
15
       }
```

4.7 Sub Firmware

References

[1] Gene F. Franklin, Abbas Emami-Naeini, and David Powel. Sistemas de Controle para Engenharia. 6th ed. Porto Alegre, Brasil: bookman, 2013.