

LoRa Setup Writeup

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I. INTRODUCTION

The purpose of this experiment was to examine the direct wireless communication between two devices with SX1276RF1KAS Transceivers and Arduino Uno boards. As it stands, no gateway has been set up (though that is in the works), so source code that allows direct communication between two nodes was used. This experiment implemented an approach using SX1276RF1KAS Transceivers and Arduino Uno boards. Communication was established between the two units before sensors were attached to the client unit, and the data from those sensors were sent to the server unit.

II. MATERIALS

The following were used in developing this system:

- SX1276RF1KAS \times 2
 - These are the LoRa units which transmit and receive the data from one Arduino to another
- 915MHz Antenna (yellow) \times 2
 - These are the antennae which came with the LoRa units, and are plugged into the “HF” port on the LoRa units
- Arduino Uno board \times 2
 - These are the micro-controllers which determine which data to collect and send
- USB 2.0 Type B cable \times 2
 - These are to connect the Arduino units to a computer, in order to upload instructions to them
- Jumper Wires
 - These are to connect the Arduino and LoRa units, as well as the Arduino units and sensors

The pin connections used in the setup of this system are shown in table I.

Purpose	LoRa	Arduino
Power supply	2 (VDD_RF) 22 (VDD_ANA) 34 (VDD_FEM)	3.3 V
Ground	32 (GND)	GND
SPI	1 (SCK) 3 (MOSI) 8 (MISO) 7 (NSS)	D13 D11 D12 10
Digital I/O	12 (DIO0) 5 (DIO1) 17 (DIO2)	2 6 7
Reset	10 (NRESET)	8
RXTX	13 (RXTX)	3

TABLE I

PIN MAPPING FOR THE EXPERIMENT.

III. SETUP

Once the pins are connected as shown in table I, communication between the two units can start. The first way to test this system was to upload