COMMS system design

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# Background

One of the main functions of the satellite is to receive data from the ground station and transmit responses.

This functionality is enabled through a LoRa chip and a LoRa C library (<https://github.com/jgromes/LoRaLib>) for Arduinos.

Since the data being transmitted will take multiple forms depending on thee payload that wishes to use it, we must design the packet interface rigidly.

# TECHNIQUE

We will have to provide a generic interface to the LoRa chip with a part of the interface dedicated to telling the receiving side what type of packet it is.

The LoRa chip will only transmit strings of information in the form of a protocol called FOSSA\_LORA\_PROTOCOL.Pin LAYOUTS

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| --- | --- |
| **LoRa Module** | **Arduino / ATmega 328** |
| GND | GND |
| 3.3V | 3.3V |
| DIO0 | D2 |
| NSS | D10 |
| SCK | D13 |
| MOSI | D11 |
| MISO | D12 |

Table 1 - Pins connecting the LoRa module and the Arduino ATMega