

## Distance Measurement using LoRa

[https://www.youtube.com/watch?v=2xbgkoE\\_Mv8](https://www.youtube.com/watch?v=2xbgkoE_Mv8)

The Distance Measurement using LoRa project is designed to achieve long-range wireless communication and distance monitoring using LoRa 915 MHz modules and Arduino Nano microcontrollers. The system consists of a transmitter and receiver section, where the transmitter sends data wirelessly through the LoRa module, and the receiver collects and displays the transmitted information on the Arduino serial monitor through a laptop connection. A 3.7V Li-Ion battery with a TP4056 charging module powers the transmitter unit, making the system portable and energy efficient.

LoRa technology enables reliable communication over long distances with low power consumption, making it suitable for remote monitoring and IoT applications. The Arduino Nano controller processes and transmits the data between the LoRa modules, while the receiver section connected through USB displays the received signals and communication status on the serial monitor. This project demonstrates an efficient and cost-effective method for long-range wireless data transmission and distance-related monitoring applications.

### Objectives:

- ☐ To design a long-range wireless communication system using LoRa 915 MHz modules.
- ☐ To transmit and receive data using Arduino Nano microcontrollers.
- ☐ To display the received data on a laptop through Arduino serial monitor.
- ☐ To achieve low-power and reliable wireless communication.
- ☐ To develop a portable distance monitoring system using Li-Ion battery power.

**Major blocks present in this system:**

1. Rechargeable Battery.
2. Arduino Nano.
3. LoRAa Modules.
4. LAPTOP.

**Software's used:**

1. Express SCH for Circuit Design.
2. EMBEDDE C and ARDUINO IDE.

**Distance Between Two Lora Modules**

## BLOCK DIAGRAM

