Lora RF Module / Trans Receiver Specifications are as follows:

1. Operating Voltage: 3.3 V.
2. Operating Frequency: 433 Mhz.
3. Half-Duplex SPI communication.
4. Modulation Technique FSK, GFSK, MSK, GMSK, LoRa.
5. Packet size: 256 bytes.
6. Sensitivity: –148 db.

Upto 6 kms of range can be covered by LoRa at data rate of 50 Kbps. In this paper, we are going to design and analyse LoRa System for various applications and going to compare it with other technology.

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HF BAND VEHICULAR ANTENNA WITH NVIS COMMUNICATION

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Antenna plays a vital role in our day today life because through Antenna, signal transmission and reception take place. Information security is one of the key components for military applications. Vehicle antennas work in the L Band, or roughly 1 to 2 GHz, although they need satellites to transmit signals. However, there are restrictions on signal transmission in the ionosphere, such as skip zones. The skip zone is the region in which communication is not possible due to a lack of signal reception. NVIS is therefore used to get around this restriction. NVIS represents Near Vertical Incident Skywave. Low HF frequencies and extremely high radiation angles (> 75°) are used in the implementation of NVIS antennas. It is noted that good radiation efficiency is rarely attained with current research. It reveals errors in the antenna's proper radiation angle setup. A radiation angle that is appropriate lowers the skip zone.

Lastly, in order to improve the characteristics like gain and efficiency, we're going to utilise certain strategies that will improve the antenna's performance. This antenna will work across the ionosphere and be beneficial for transmitting data and voice in military applications.

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DISTRIBUTED ANTENNA SYSTEM IN WIRELESS IMAGING AND DIAGNOSTICS

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The utilization of Distributed Antenna Systems (DAS) has become increasingly significant within healthcare environments, as they provide dependable wireless communication solutions that are vital for contemporary medical imaging and diagnostic procedures. This study investigates the utilization of Decision Support Systems in facilitating wireless imaging and diagnostics in healthcare settings. The guarantees reliable and resilient wireless coverage, enabling the smooth transfer of medical imaging data from different imaging modalities to central viewing stations or Picture Archiving and Communication Systems. This allows radiologists and physicians to remotely examine imaging tests, which helps them analyze and diagnose them promptly.

In addition, the utilization of DAS facilitates instantaneous collaboration among healthcare professionals through the facilitation of wireless communication and the exchange of images during diagnostic procedures and consultations. The implementation of DAS improves telemedicine and teleradiology programs, enabling radiologists to remotely analyze pictures and offer diagnostic consultation to healthcare practitioners in remote or underserved regions. DAS technology enhances the performance of portable imaging devices, such as handheld ultrasound scanners and mobile X-ray units, by guaranteeing uniform coverage and dependable data transfer. This allows for point-of-care imaging and quick diagnostic evaluation in different clinical environments. DAS facilitates wireless access for imaging equipment utilized in critical care situations, allowing for swift diagnostic and treatment determinations for patients with severe injuries or medical emergencies in emergency rooms and trauma centers. Distributed Antenna Systems are of paramount importance in facilitating wireless imaging and diagnostic functionalities within healthcare establishments. These systems enable the transmission of im-