

INTRODUCTION TO MESHTASTIC OFF-GRID COMMUNICATION



Tech Net # 30

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ABOUT

For those who do NOT yet have a
Meshtastic device

Add more Meshtastics nodes to
area

INTRODUCTION

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WHAT

Meshtastic is a community driven, an off-grid, open-source mesh network, utilizing inexpensive, long-range, LoRa radios for license free, text based and telemetry communication





USES

Off-grid text messaging when cell phone or internet goes down

GPS location tracking (person, pets, assets)

Remote weather and telemetry

Private encrypted communication

Examples: hiking, skiing, hunting, camping and emergency rescue operations.

BENEFITS

- License Free
- Low Cost
- Low power
- Long Range
- Private
- Compact Devices
- Prebuilt or DIY



LoRa

- Long Range Radio
- Low Power (less than a watt)
- Chirp Spread Spectrum Modulation
- 915 MHZ ISM band in North America
- +22 dBm (155mw) transmit power
- Line of Sight up to 2 miles urban, 8+ miles rural



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Meshtastic Protocol



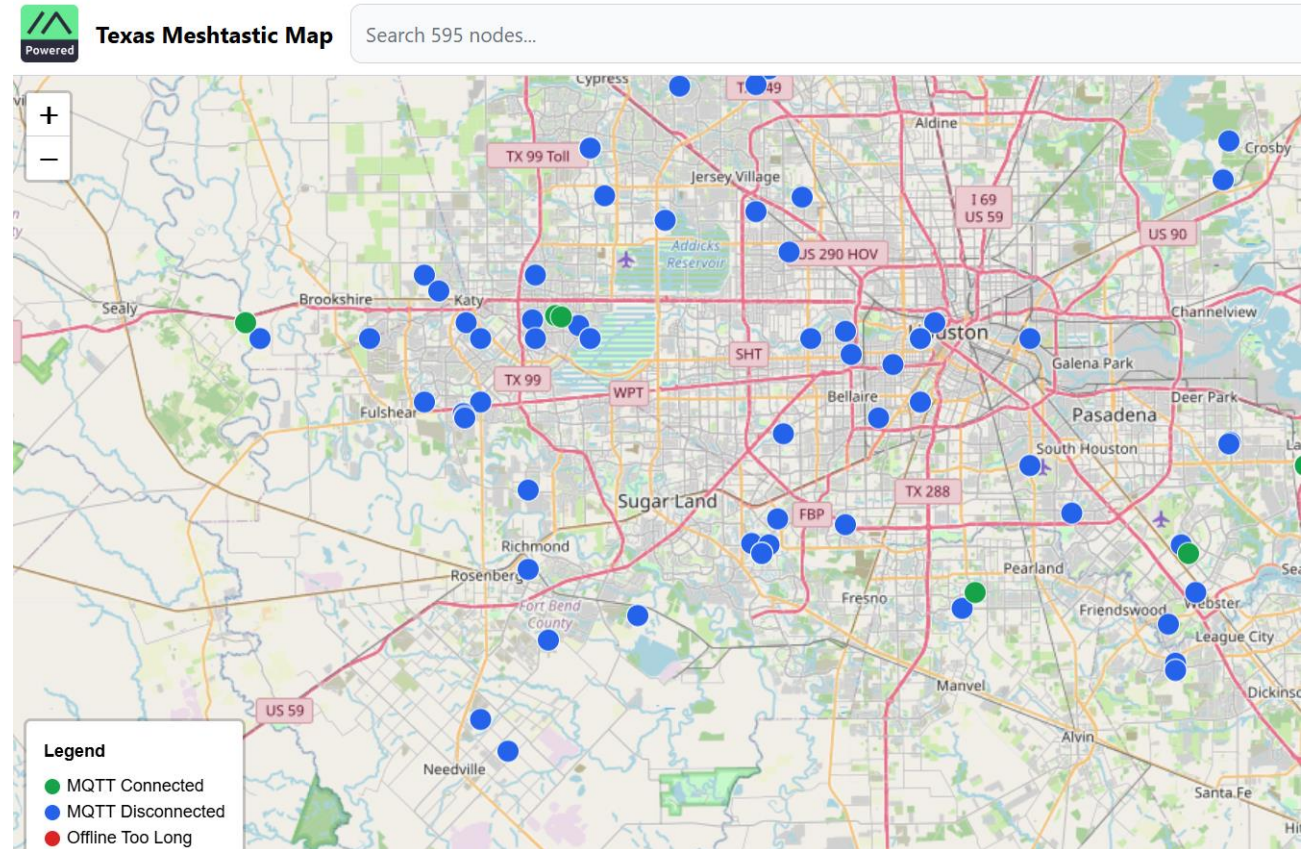
- Utilizes LoRa Radio
- Different than LoraWAN, Helium or the ThingsNetwork
- Creates a Mesh Communications Network
- Web client, Android, iOS apps
- Bluetooth, WiFi and serial connection
- Open-Source

Mesh Network



- Device or “Nodes” are linked together
- Create Multiple Routes
- Increased Range

MAPS



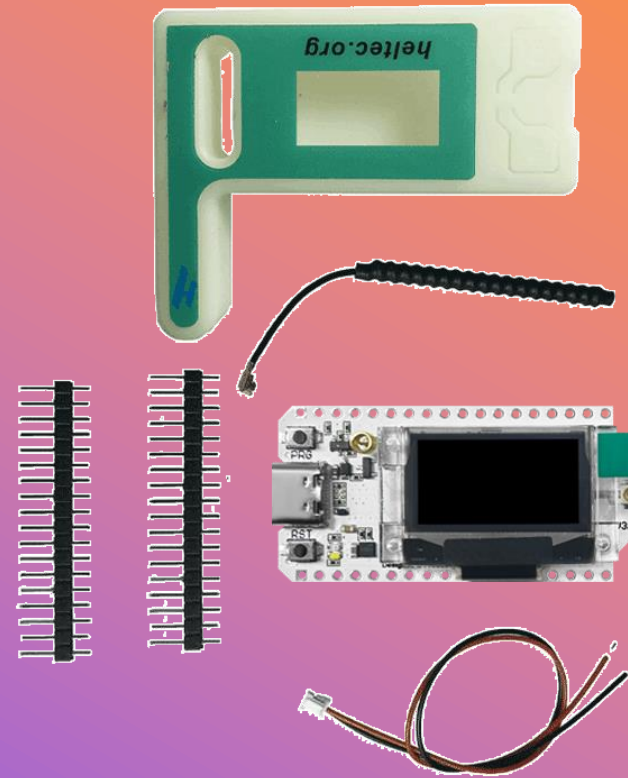
DEVICES



- Heltec V3
- Rak Wisblock
- T-Beam Supreme
- Station G2

DEVICE: Heltec V3

- Very Inexpensive \$15-25
- Very DIY friendly
- Good variety of GPS and sensors available
- Amazon, Ali Express
- Need battery, case and antenna



DEVICE: RAK Wisblock

- Inexpensive \$35
- Modular
- Custom modules for GPS and sensors
- Amazon, Ali Express, RAK
- Need battery, case, antenna and cables



DEVICE: SEED Studio T-1000



- Compact Light Weight (Credit Card size)
- Self Contained Device, works well in vehicle companion client (iOS, MacOS or Android)
- No assembly required
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Recommendations



- Get a Base Station AND a portable
- Base station goes up as high on the roof or mast as possible
- Portable node will receive signals inside your home from the Base Station
- Discord Recommended settings:
<https://docs.google.com/document/d/17etc1riws-fjZ4gc8IAcYKFH1q6GPE21ZRCTNr-wBJo>
- Device Roles: Routers vs Clients
- For more robust mesh network, place nodes on “ham” owners/club towers (Height is Might)

WHERE TO BUY



- Purchase all the parts and build it yourself
- Ebay and ETSY have pre-built, ready to go nodes (flash)
- Rokland, Seeed Studios, Amazon
- At swap meets

Resources



- Meshtastic Website: <https://meshtastic.org/>
- Meshtastic Github: <https://github.com/meshtastic>
- Meshtastic DisCord: Houston Mesh (on line startup guide)
- Meshtastic YouTube: <https://www.youtube.com/watch?v=ZsIWYVzqJPM&list=PLshzThxhw4O5JTOACGHZYSd3soDhoXKK>
- Meshtastic Reddit: <https://adrelieu.com/meshtastic-the-complete-getting-started-guide/>

WRAP UP & QUESTIONS??????

THANK YOU

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