

How to make a mini base station





Overview

This guide provides instructions for building a budget DIY GPS/GNSS base station and receiver, along with an NTRIP server client using an ESP32 microcontroller and the Unicorecomm UM980 GNSS receiver. What can you do with a base station?

There's plenty of fun things you could achieve with such a base station: reverse-engineering of proprietary technology, security research, and probing for vulnerabilities through WWAN interfaces rarely considered as an attack surface. Maybe you could even set up your own cell network — if you ever go sailing in neutral waters, that is.

How do I create a GNSS base station?

A GNSS Base Station can also be created using a SBC (single board computer). Thanks to originaldev on the SparkFun forums for creating a Raspberry Pi based setup. You can checkout their build instructions [here](#). Deploy! That's it!.

Do you need a 2G base station?

As such, grab your Faraday cages and lead-lined fridges, and make sure that you don't cause any illegal interference if you do end up exploring this path. We've generally seen 2G base stations over the years, but with the sunset of 2G, those have only been useful in an increasingly low number of countries, and, every once in a while, a hacker camp.



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[Building Your Own 4G LTE Base Station](#)

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[HOWTO: GSM Base Station with the BeagleBone Black, Debian GNU/Linux ...](#)

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[via HACKADAY: Building Your Own 4G LTE Base Station - ...](#)

via HACKADAY: Building Your Own 4G LTE Base Station We've seen quite a few DIY 2G networks over the years, but the 4G field has been relatively barren.



[GNSS Base Station Prototype](#)

Jun 25, 2021 · A fixed GNSS RTK base station is used to increase the accuracy of other nearby mobile GNSS receivers to within an inch of their ...



[Budget DIY ESP32 GPS Base Station and Receiver](#)

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[How to Build a DIY GNSS RTK Base Station for ...](#)

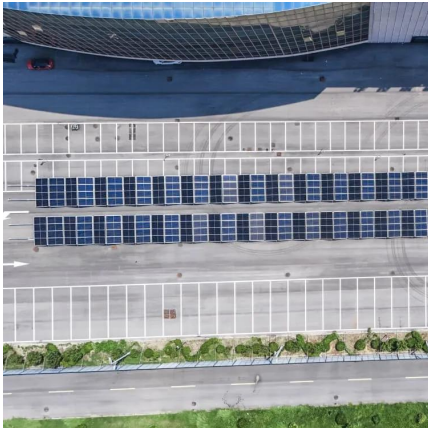
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Aug 4, 2022 · A Simple DIY Portable RTK Base Station I have been learning about RTK GPS and recently wrote a page for the wiki on how to setup ...

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[How to Build a Painting Station for Miniature ...](#)

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[Small cell base station design resources , TI](#)

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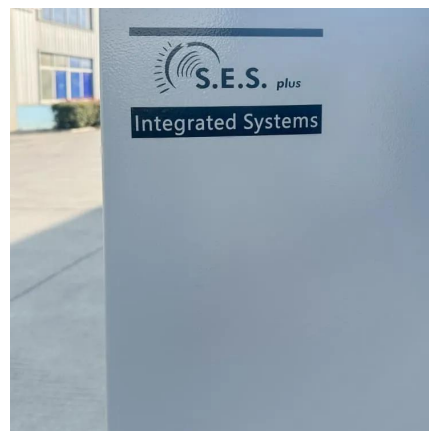


[Build Your Own Cellular Network , MIT ...](#)

Apr 20, 2010 · Build Your Own Cellular Network
Just about anybody can create an inexpensive cellular base station that routes calls all over the ...

[How to Build a DIY GNSS Reference Station](#)

Static Base Setup & LASERS! In the previous tutorial we described how to create a temporary base station with the 1 to 10 minute survey-in method. The temporary base method is flexible, ...



[How to spoof a cell phone tower \(cell site, base station\)](#)

Oct 13, 2025 · An answer to a recent question has given me an idea for a school project (security CS program). Also, an active attacker (with a fake base station) can potentially force a mobile ...



[Budget DIY GPS/GNSS Base Station / Receiver Setup With ...](#)

Budget DIY GPS/GNSS Base Station / Receiver Setup With ESP32 and UM980: The ESP32 is a versatile microcontroller renowned for its WiFi and Bluetooth capabilities.



[How To Make A Mini Hydroelectric Generator ...](#)

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[LTE/NR Base Station Software](#)

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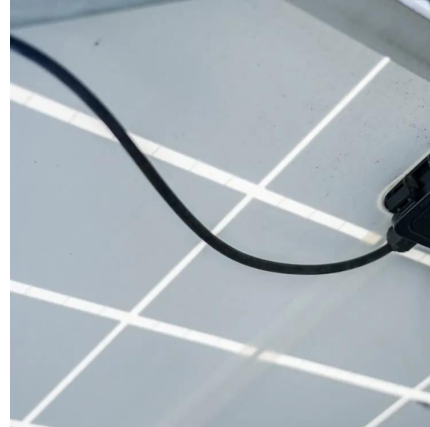
[My FPV Ground Station Setup - 9X ...](#)

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[How to Build a DIY GNSS RTK Base Station for Onocoy](#)

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