



The Payphone You Have Dialed Has Been Disconnected (v2)

The State (and Revival) of Payphones in 2023

Agenda

- Who are we?
- What's a payphone?
- Interest in infrastructure → Mapping and scanning payphones
- The PhilTel project
- What is PhreakNet → How PhilTel ties into it
- Future Plans

Who are You?

Mike

- Software engineer
- Philly 2600 (2012-)
- FreePBX/Asterisk user (2012-)
- Networks of Philly (2018-)
- Dialup.world (2021-)

Naveen

- Computer engineer, IT
- Telephone collector, phone phreak (2016-)
- Asterisk user (2018-)
- Payphone inventory (2019-)
- PhreakNet (2021-)
- Asterisk/DAHDI developer and consultant (2021-)
- BBS software developer (2022-)
- Environmental activist (2016-)

What is a Payphone?



What is a Payphone?



What is a Payphone?



Networks of Philly

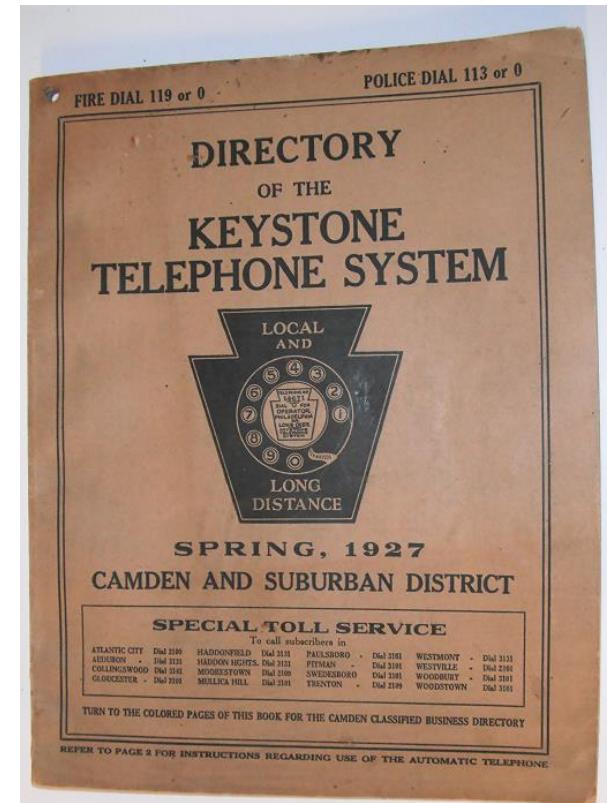
- Networks of Philly is a project attempting to discover and understand network infrastructure all around us.
- <https://networksofphilly.org>



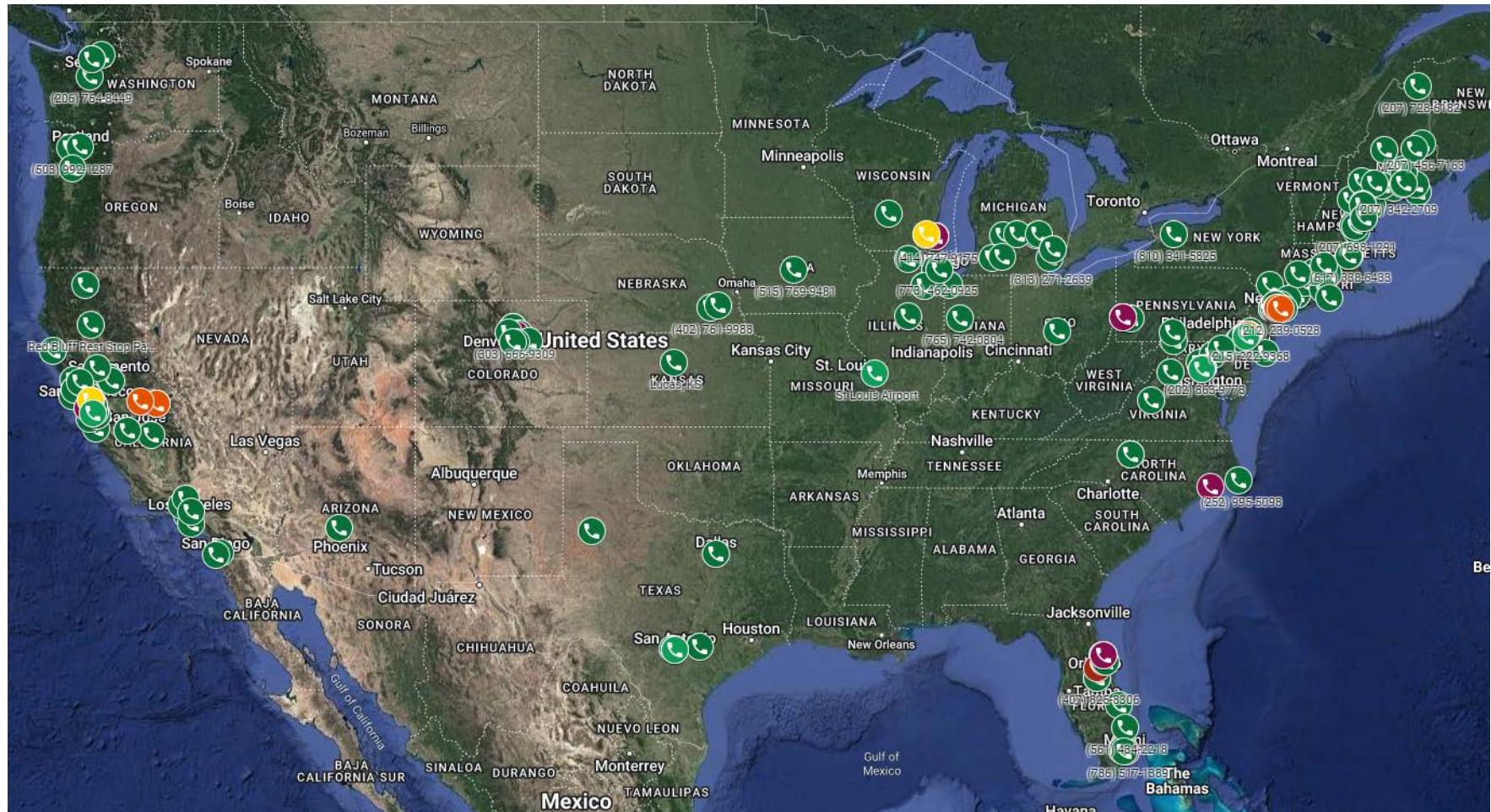
Local Telco Infrastructure



Bell of Pennsylvania

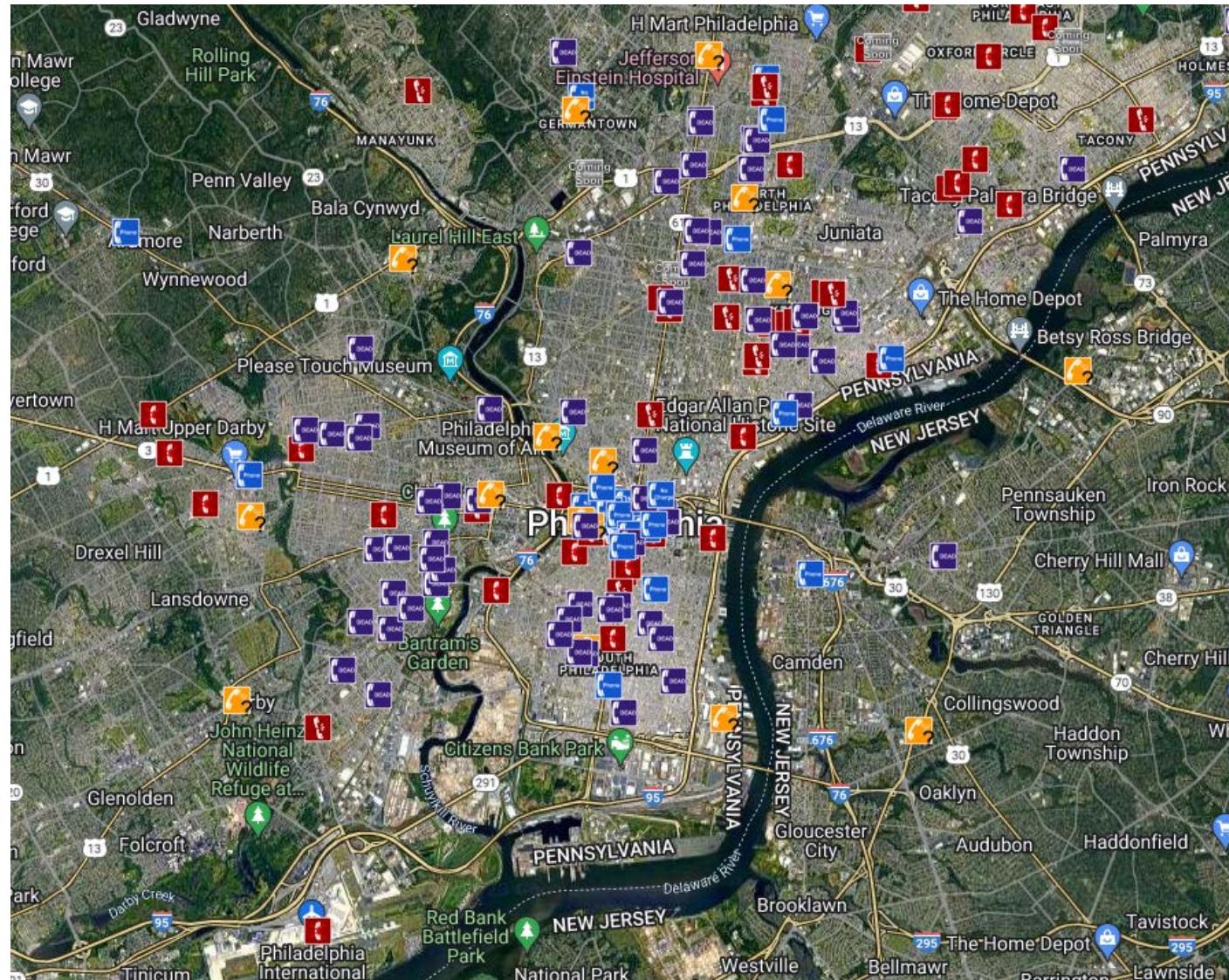


Where Can You Find A Payphone?



<https://phreaknet.org/payphones/>

Local Payphones



Local Payphones



What Happens If You Call A Payphone?

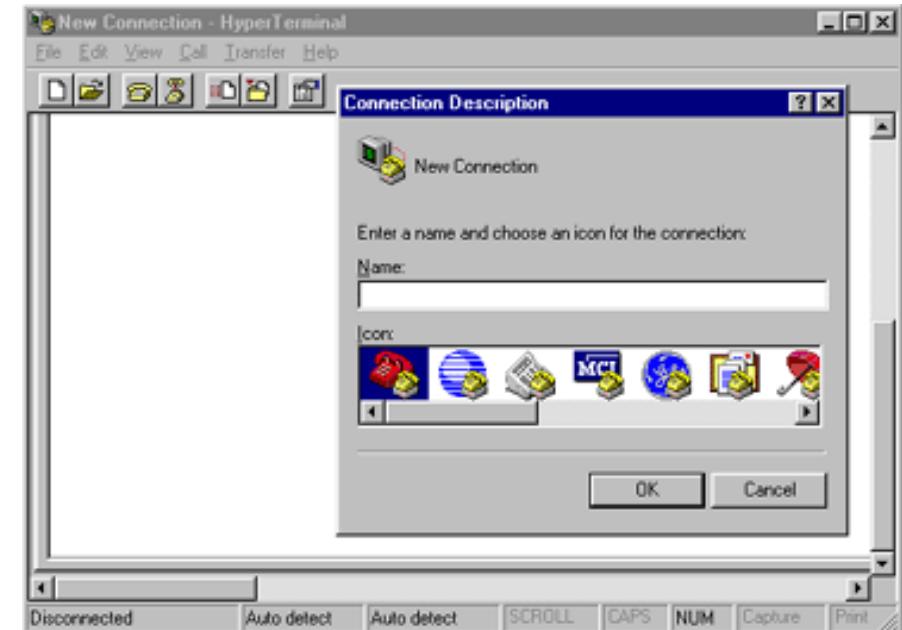
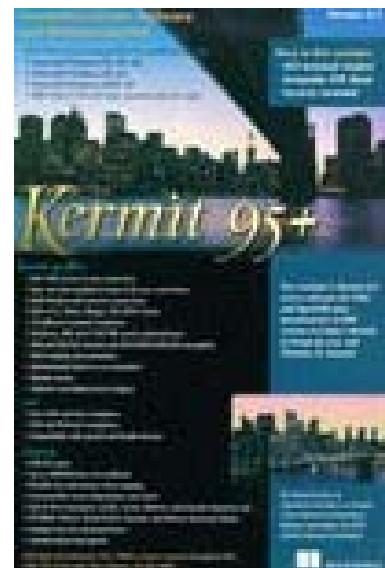
- Historically, they would... ring!
 - No charge for answering incoming calls
 - Bell System had policies to prevent fraud
- COCOTs typically answer with a 300/1200 baud modem
 - Remote management
 - Reporting
 - Security...

Protel Printouts

TC!*2152229996*72765*DD8822*4868*025*2210301004552*67805*

Number	Amount in Coin Box	Model No.	% Full = 25%	Balance When Last Emptied
(215) 222-9996	\$727.65 -\$678.05 = \$49.60		Checksum? PIN? Only changes when emptied... but not every time	Local Timestamp 2022 October 30 00:45 local time (12:45 am EDT)

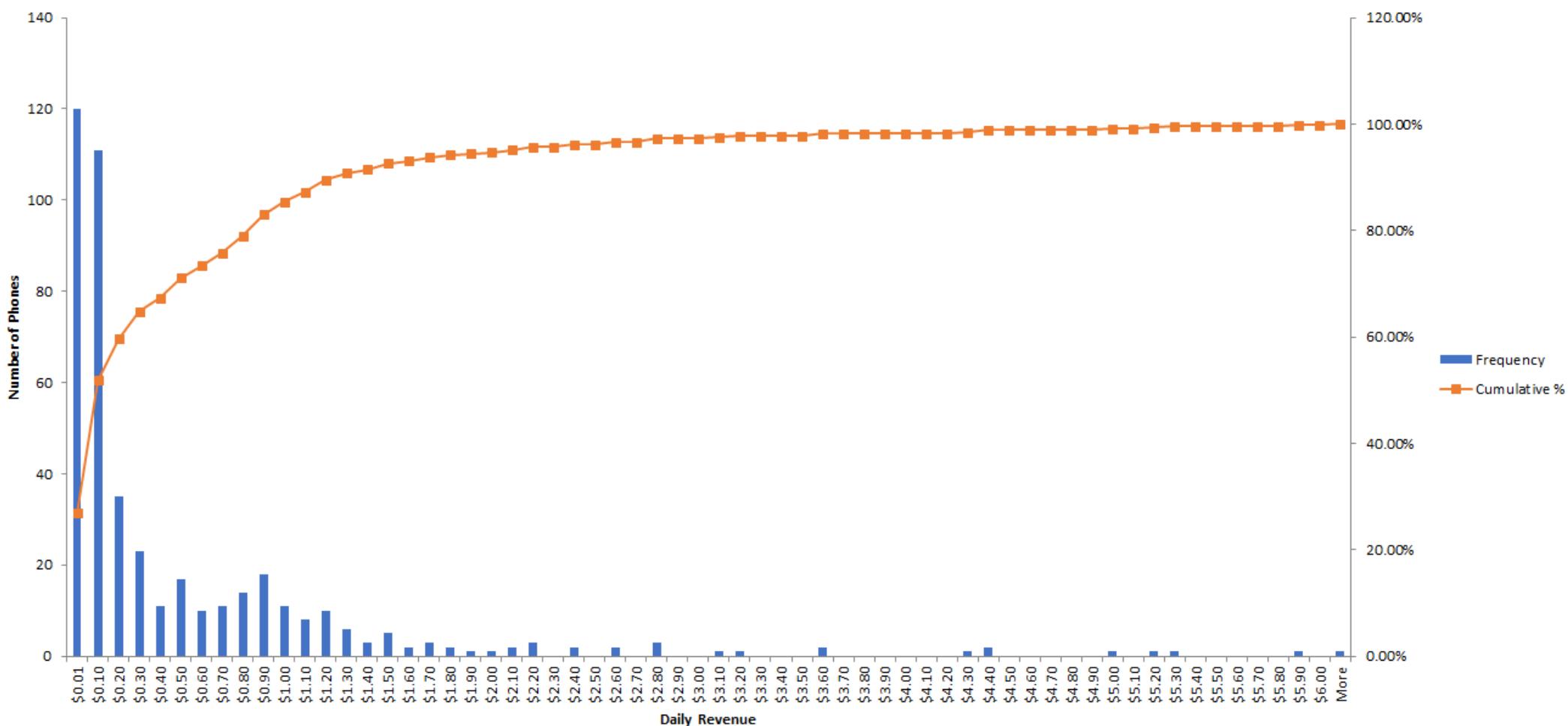
Automating It...



Usage summaries posted monthly in the NIPCAQ
<https://phreakscan.com>

Payphone Revenue

Daily Revenue of Payphones (n=447)



ANACs

- Identify the calling line
- (800) 444-4444 – MCI
- (800) 437-7950 – MCI
- (844) 700-0431 – Payphone Reporting Line
- Email payphones@phreaknet.org with the number and location

“Let’s start our own telco”

- **PhilTel** is inspired by Futel, based out of Portland, Oregon
- Bring payphones back but make them free-to-use this time (yes, we know it is a misnomer) because payphones are cool
- Use as much discarded and second-hand stuff as we can, build with COTS hardware and open-source software
- Large upfront cost (>\$300), small recurring cost (<\$10/mo)
- Benefit people without cell phones



Payphone Hardware (COCOT)



Payphone Hardware (Coin Line)



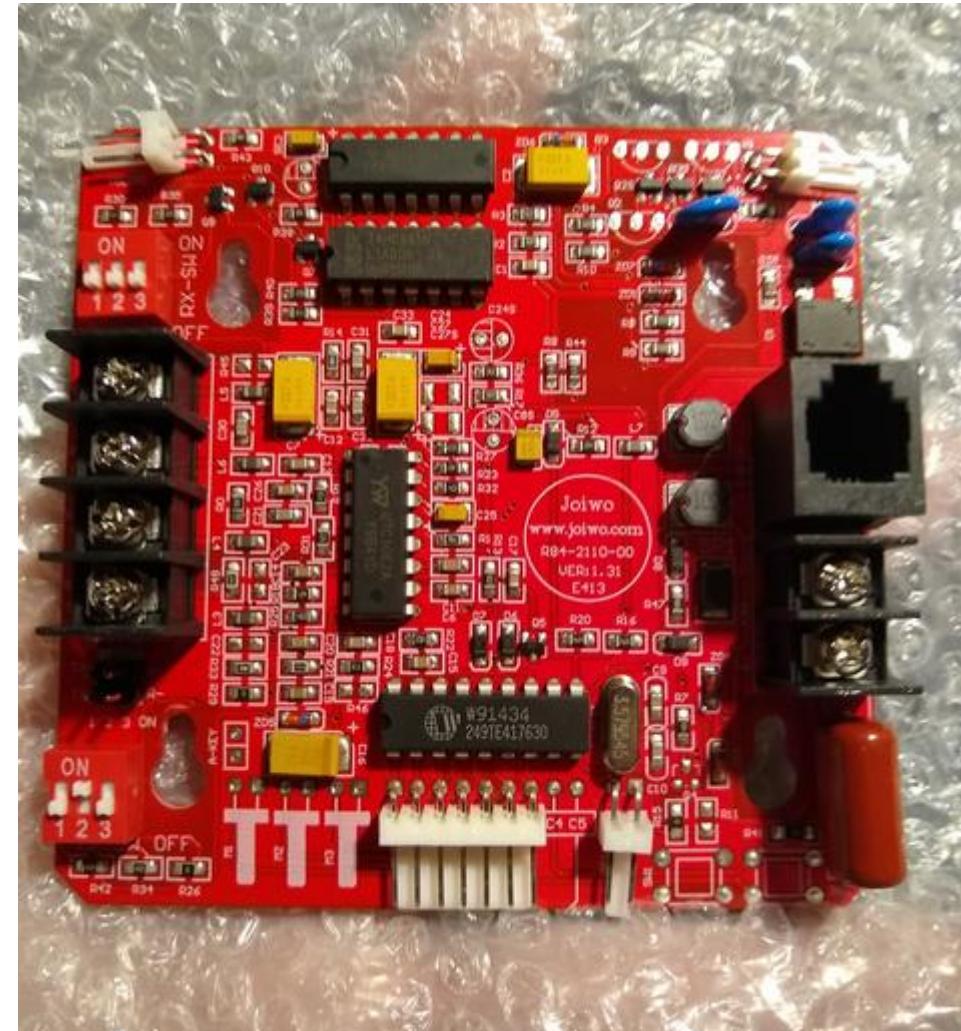
Okay, now what?



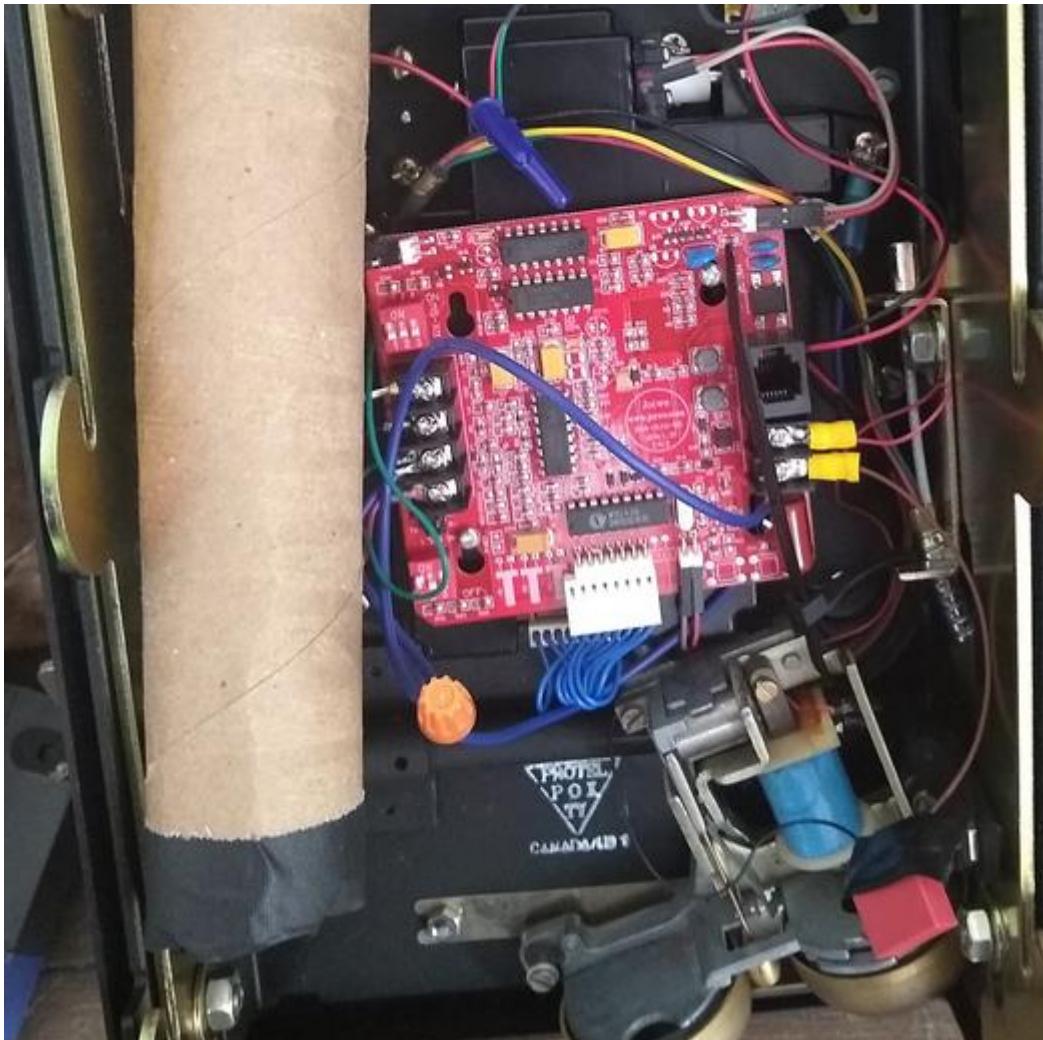
I HAVE NO
IDEA WHAT
I'M DOING

2110V Coinless Board

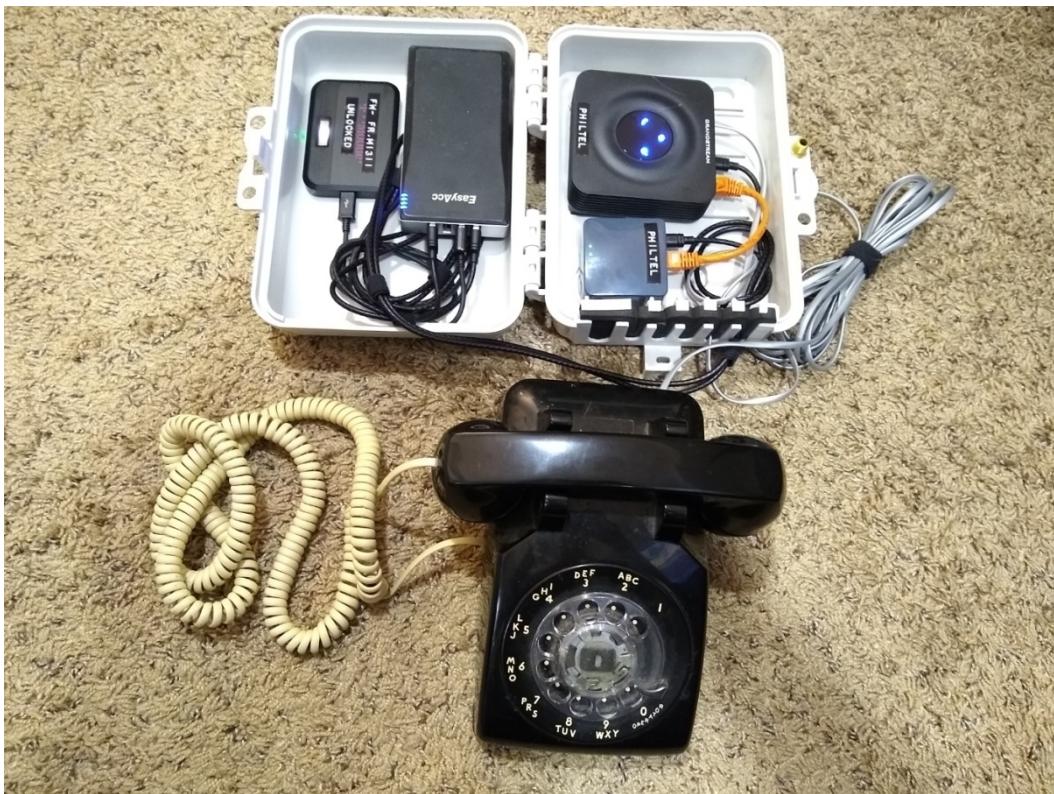
- “Dumb” phone board made for armored phones
- Acts as an (almost) drop-in replacement board for most payphones
- No longer made (but still available)



2110V Coinless Board (Continued)



Our Portable Proof of Concept



Grandstream HT801 ATA

- Analog Telephone Adapter
- Allows analog telephones to speak SIP (Session Initiation Protocol)
- Registers as a client to our telephone exchange so we can make/take calls
- Remotely monitored with GDMS (Grandstream Device Management System) for free!



GL.iNet AR300M Router

- Low-cost travel router
- Runs OpenWRT natively
- Used as an OpenVPN client and/or WiFi bridge

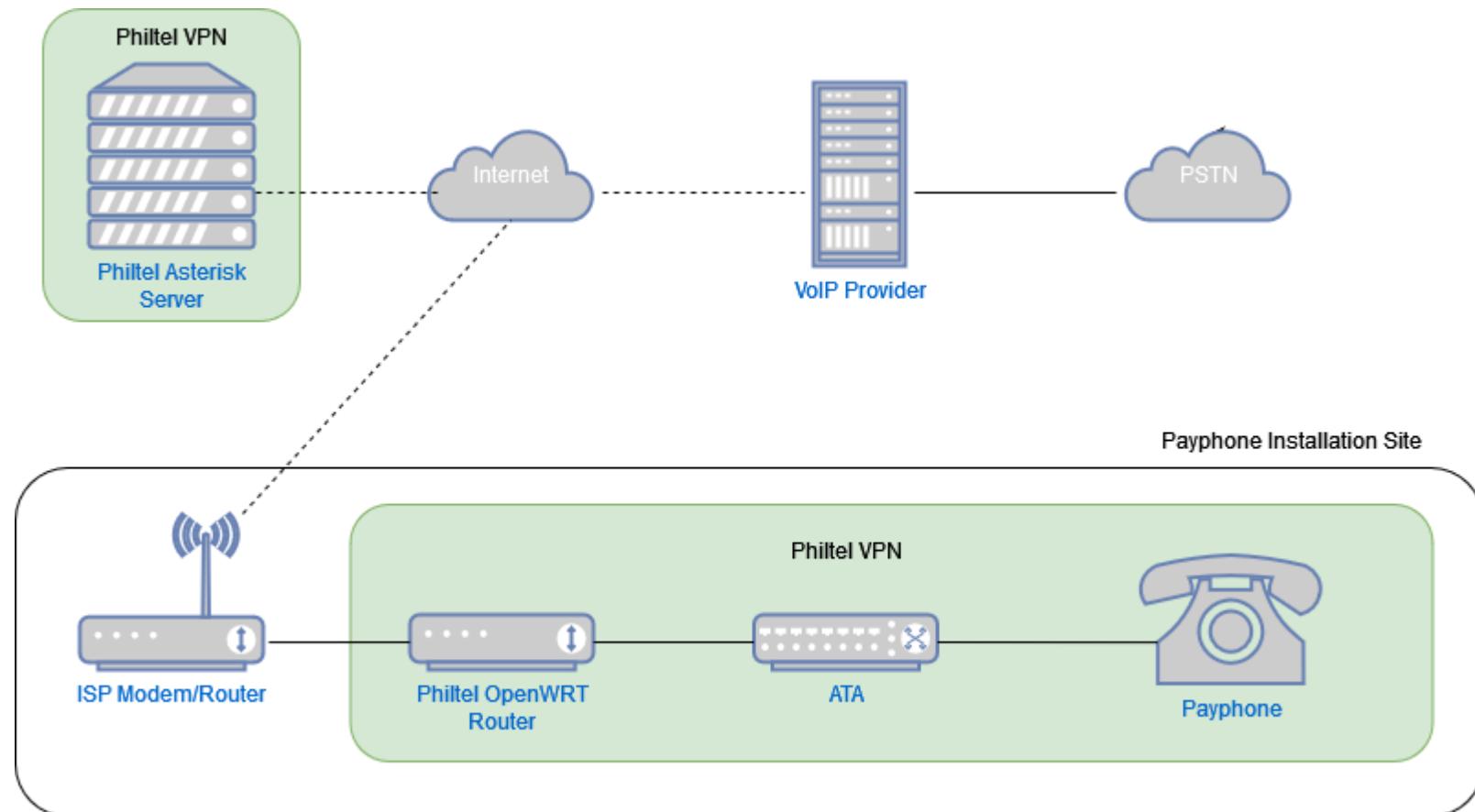


Franklin T9 Hotspot (optional)

- T-Mobile used to give these away for free!
- Stock, it works for T-Mobile or any carrier that piggybacks on T-Mobile
- Easy to SIM unlock for other carriers: echo -n "\${IMEI}simlock" | sha1sum | cut -c1-8
- Fairly easy to root, many hidden/debug pages



Putting It All Together



Asterisk



SIP
provider

VoIP



Asterisk®

SIP/RTP



IAX2

DAHDI

T1



Asterisk®

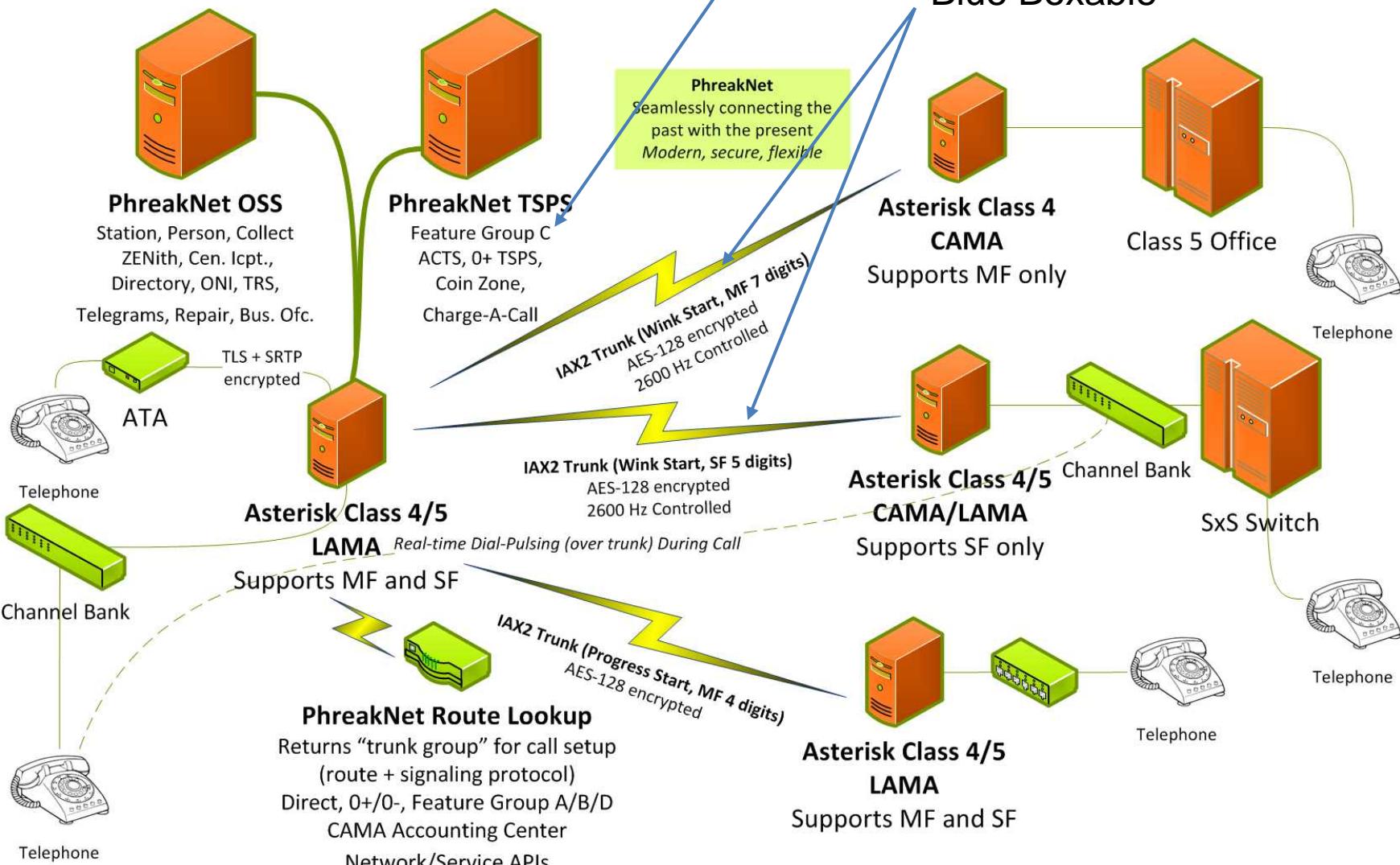


PhreakNet

Red Boxable



Blue Boxable



<https://portal.phreaknet.org>

Billing

Business office
addresses are
shown in front
of telephone
directory.

RATE CODES

DIRECT CALLS

1. Day Rate
2. Evening Rate
5. Night Rate
6. Weekend Rate
9. Late Night Rate

PERSON CALLS

3. Person Rate
4. Night Rate

STATION CALLS

7. Station Rate
8. Night Rate

COLLECT CALLS

0. Collect Rate

SERVICES

- T. Telegrams
- C. Custom Local Area
- Signaling Services

[MORE INFO](#)

IF YOU PAY BY MAIL
PLEASE RETURN PUNCHED CARD WITH YOUR PAYMENT
IF YOU PAY IN PERSON
PLEASE BRING BOTH THIS BILL AND PUNCHED CARD
FOR BUSINESS OFFICE DIAL



Mountain Pacific Telephone Company

OFFICE HOURS 9 A.M. TO 5 P.M. MONDAY THROUGH FRIDAY

307 2 270 2122

NAVEEN ALBERT
PAGE 1

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DATE	PLACE CALLED	C	TELEPHONE NO	MINS	AMOUNT
09 27	MEMPHIS	TN	2 383 1677	45	16 18
10 02	MEMPHIS	TN	2 383 1677	56	20 14
10 08	MEMPHIS	TN	6 383 1677	32	11 37
10 11	MEMPHIS	TN	2 383 1677	43	15 46

307 2 270 3203

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OCT 15 23

Service and Equipment — Residence Private Line	\$4.40
Message Units — For one month	0
Calls Outside Local Area	4
Telegrams	0
Other Charges or Credits — Explanation enclosed	\$2.18
United States Fee	\$6.31
Directory Advertising	\$0.00
Balance From Last Bill	\$0.00
PLEASE PAY THIS AMOUNT →	\$76.04

OTHER CHARGES OR CREDITS

Touch-Tone Service	\$3.18
Employee Discount	\$-1.00

Flagship Phone @ IffyBooks

- Installed December 17, 2022
(and reinstalled in January)
- Had a party, hackers and phreakers showed up
- Has to move again soon!



People seemed to like it

NEWS > PHILADELPHIA

Philadelphia welcomed PhilTel's first free public phone as a small way to resist big tech

PhilTel's founders hope the phone installed Saturday is the first of many and will help restore the city's "public communications infrastructure."



The Washington Post

Sign in

Remember the pay phone? This man is bringing them back at no cost.

'There are lots of people who can't afford a cellphone or a phone bill,' PhilTel co-founder Mike Dank said



By [Cathy Free](#)

December 16, 2022 at 6:00 a.m. EST



≡ CNN US Audio Live TV Log In

A volunteer collective is setting up free pay phones in Philadelphia

By Zoe Sottile, CNN

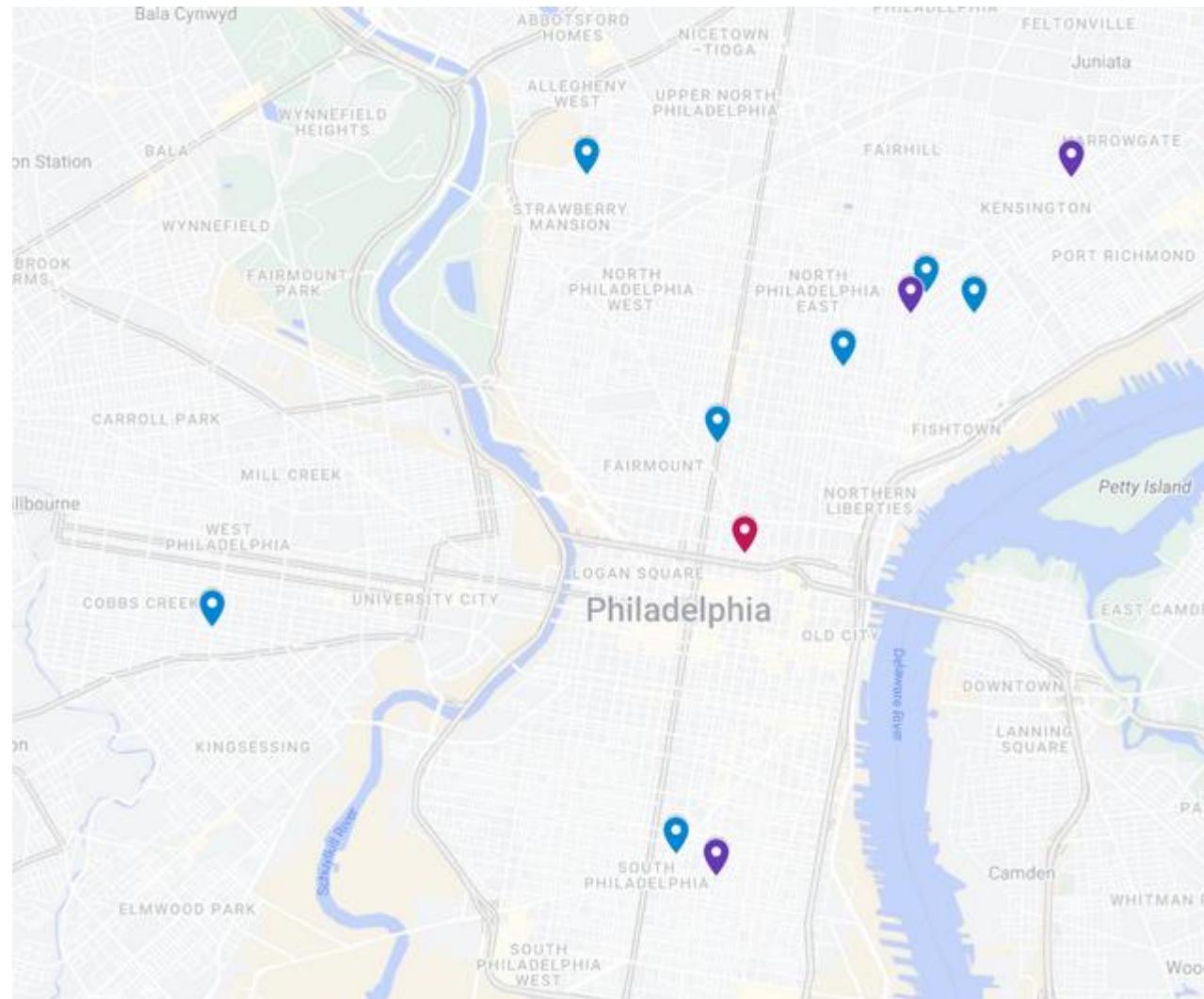
Published 10:04 AM EST, Sun December 4, 2022



Courtesy Mike Dank



Future: More Installations

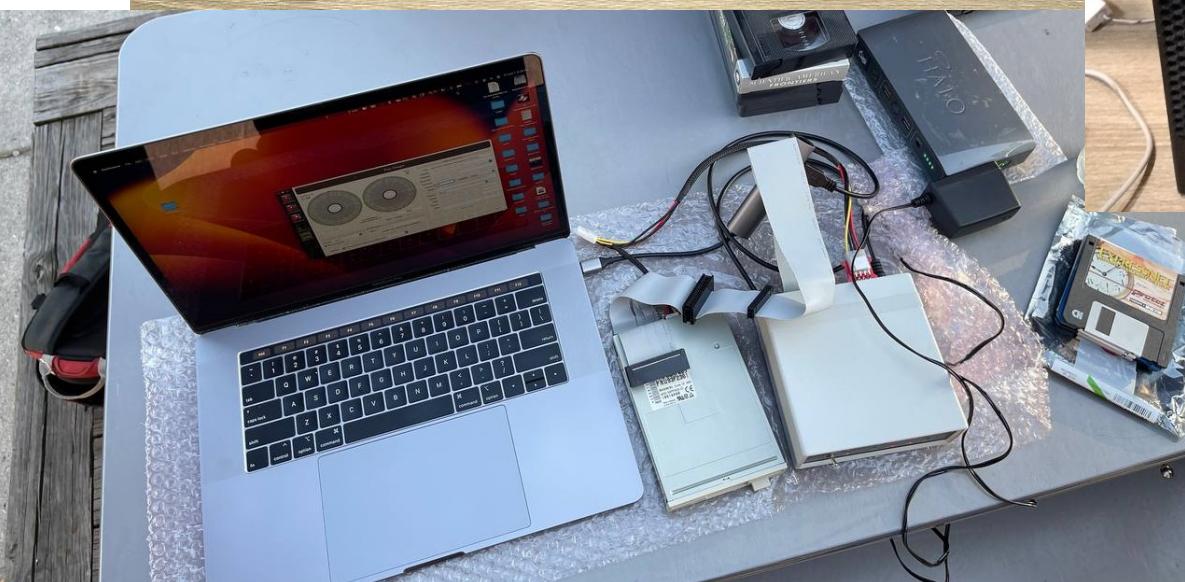


Future: More Installations

- New phone in the works for **Thunderbird Salvage** on Frankford Ave in East Kensington/Fishtown
- Phone is new old stock with an electromechanical brass ringer
- Will be installed inside a real red British phone box!
- Raising funds -> <https://philtel.org/donate>



Future: Free COCOT Programming Line, Archaeology & Archiving



Questions?

Mike

- mike@philtel.org
- Famicoman (Libera IRC)
- <https://famicoman.com>
- <https://github.com/Famicoman>

Naveen

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- InterLinked (Libera IRC)
- <https://interlinked.us>
- <https://github.com/InterLinked1>

<https://philtel.org/contact/>

<https://philtel.org/donate/>

<https://github.com/philtelco/philtel-presentations/>