



Building PoWBoT

How AI Unlocks Grassroots Innovation

(or how I accidentally came to be a full-stack developer)

Glenn Jooste | Bitcoin Ubuntu

Bitcoin Circular Economies Summit | January 29, 2026

The Challenge

The Existing System

Late 2025

- Manual verification and data capture
- Manual sourcing of payment details
- Manual tracking and auditing
- Manual project registration
- 3-month cycles

It worked... but couldn't scale.

The Exploration

Just trying to make life easier

Looking for ways to consolidate existing data and make admin tasks more manageable.

- Working with Grok
- Learning Python basics
- Google Sheets basics

Then the pivotal idea...



"Help me write a basic Telegram bot"

November 30, 2025

That changed everything.

The Problems We Faced

Verification

- Manual checking
- Time-consuming
- Human error
- Bottlenecks

Payments

- Address limitations
- Wrong information
- Coordination delays
- Frustrated users

Rewards

- 3-month wait
- Unknown amounts
- Demotivating
- Can't scale

The Idea

```
MERCHANT accepts Bitcoin payment
  ↓
PROJECT creates video content
  ↓
REVIEWER verifies quality
  ↓
PAYMENTS sent automatically
  ↓
DATA tracked accurately & transparently
```

Fast. Accurate. Fair.

The Partnership

Me

- Domain knowledge
- Problem understanding
- Creative thinking
- User perspective

+

Claude

- Technical expertise
- Code generation
- Debugging
- Best practices



Day 1 – The First Attempt

November 30, 2025

The Build

- Python script
- Checked X post format
- Used xAI API (Grok)
- Basic validation

The Outcome

- **Cost:** Testing budget on API calls
- **Result:** Too many false positives

But it proved the concept.

Day 2 – The Breakthrough

December 1, 2025

The Build

- Switched approach completely
- Removed AI validation
- Direct content retrieval
- Pattern matching and format checks

The Outcome

- **Cost:** \$0
- **Result:** Dramatically improved speed and accuracy

"The best version costs nothing and runs much faster"



60 Days of Evolution

November 30 → January 27

Core Systems

- ✓ Payment integration
- ✓ Reviewer workflow
- ✓ Nostr integration
- ✓ Public dashboard
- ✓ Stats generation
- ✓ SQLite backup

8

Major Features

8,000+

Lines of Code

0

Prior Experience

Enhancements

- ✓ Telegram dashboard
- ✓ Improved messaging
- ✓ Difficulty adjustment
- ✓ Public tracker
- ✓ Error logging
- ✓ Demo mode

The System Today

Bot

- Python
- python-telegram-bot

Storage

- Google Sheets
- SQLite backup

Stats

- Public dashboard
- Real-time updates

Social

- Telegram
- Nostr SDK
- Auto-reposts and likes

Payments

- Blink API
- Lightning Network
- Receipts for users

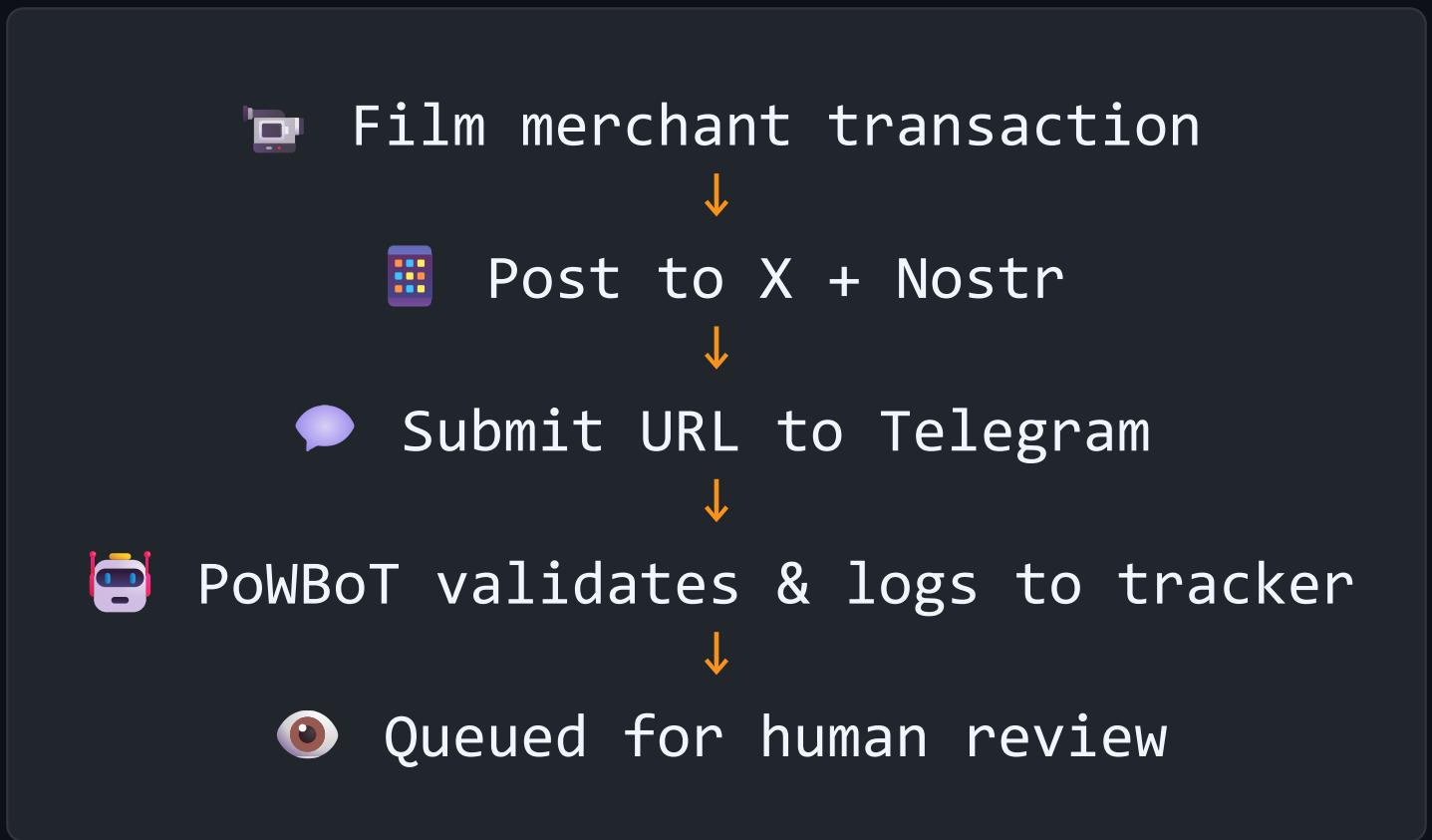
Hosting

- Local (for now)
- GitHub Pages
- 24/7 uptime



What is PoWBoT?
**An automated proof-of-work verification
and payments system.**

How It Works: Content & Submission



Real people. Real transactions. Real adoption.



Under The Hood: Validation Process

Data Extraction

- Fetch from X/Nostr APIs
- Expand shortened URLs
- Extract Lightning address
- Extract BTC Map link
- Extract project identifier
- Extract country/location
- Identify Lightning provider

Validation & Enrichment

- Check for duplicates
- Validate required elements
- Query BTC Map API
- Fetch merchant name
- Send test payment to merchant
- Like and repost on Nostr
- Log structured data

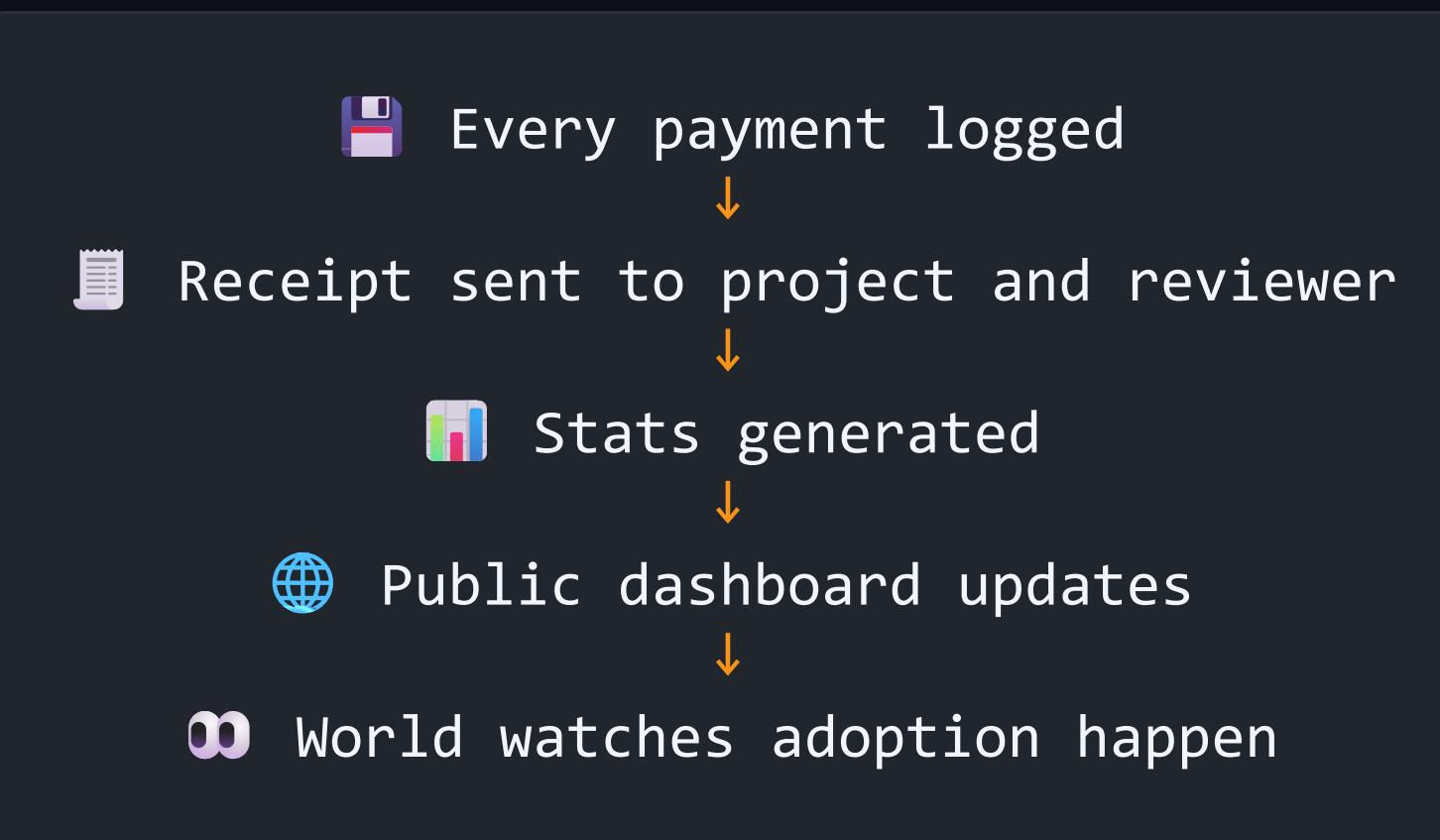
All automated, near instant and before any human review.

How It Works: Review & Reward



Human judgment. Everyone's time is valued.

How It Works: Record & Display



Accountable. Visible. Verifiable.



Proof Of Work Video Posts 2 943 messages

Pinned message https://bitcoinubuntu.github.io/powbot-stats/ PoWBoT admin

felix divoir https://x.com/i/status/201462415604704...

PoW Logged to Tracker! Bitcoin Githurai (Kenya) 🇰🇪

PoWBoT Tip Sent: ✓ Merchant tip: 21 sats → Peshcosmetics@blink.sv 11:07

Rosaline - Bitbiasara https://x.com/i/status/2014635660649329125

X (formerly Twitter) Bitbiasara (@BitBiasara) on X #spdn Grandsmatt Dachar@blink.sv... 11:55

PoWBoT Rosaline - Bitbiasara https://x.com/i/status/2014635660649329125 PoW Logged to Tracker! Bitbiasara (Kenya) 🇰🇪 11:55

PoWBoT Tip Sent: ✓ Merchant tip: 21 sats → Dachar@blink.sv 11:56

Rosaline - Bitbiasara https://primal.net/e/nevent1qqsvaan3v8lc3289uppza704xdvm02jukf2alu0xkmgveldjn8lpqa6qukc

primal.net Bitbiasara #spdn Grandsmatt Dachar@blink.sv... 12:00

PoWBoT Rosaline - Bitbiasara https://primal.net/e/nevent1qqsvaan3v8l... PoW Logged to Tracker! Bitbiasara (Kenya) 🇰🇪 12:00

PoWBoT Tip Sent: ✓ Merchant tip: 21 sats → Dachar@blink.sv 12:00

Rosaline - Bitbiasara https://x.com/i/status/2014641396523643095

X (formerly Twitter) Bitbiasara (@BitBiasara) on X #spdn Haven food court Haven@blink.sv... 12:44

PoWBoT Rosaline - Bitbiasara https://x.com/i/status/20... Checking PoW... Fetching post content... 12:44

Write a message... / 0

PoW Tracker Nov25–Feb26 - Google Sheets

PoWBoT Tracking Sheet

Contact PoWBoT admin for issues/change requests: <https://t.me/bitcoinubuntu>

Timestamp	Project Name	Merchant Name	Lightning Address	Tip	Platform	Telegram Link	Notes
359	2026-01-23 09:01:51 UTC	Bitcoin Ekiti (Nigeria) NG	KJ Multipurpose Store adonsken@blink.sv	✓	Nostr	https://t.me/c/2378392967/6553	Duplicate video
360	2026-01-23 09:07:55 UTC	Bitcoin Githurai (Kenya) KE	Constanza Peshcosmetics@blink.sv	✓	X	https://t.me/c/2378392967/6556	Video reviewed
361	2026-01-23 09:56:08 UTC	Bitbiasara (Kenya) KE	Grandsmatt Dachar@blink.sv	✓	X	https://t.me/c/2378392967/6559	Video reviewed
362	2026-01-23 10:00:38 UTC	Bitbiasara (Kenya) KE	Grandsmatt Dachar@blink.sv	✓	Nostr	https://t.me/c/2378392967/6562	Video reviewed
363							
364							
365							

PoW Tracker Nov25–Feb26 - Google Sheets

PoWBoT Payment Audit

Contact PoWBoT admin for issues/change requests: <https://t.me/bitcoinubuntu>

Timestamp	Post URL	Row #	Name	Reaction	Status	Admin Notes	Payment Timestamp
2026-01-23 09:01:51 UTC	https://x.com/i/status/2014635660649329125	361	@jaygallardo2376	🔥	Approved		2026-01-23 10:01:02 UTC
2026-01-23 09:57:18 UTC	https://x.com/i/status/2014635660649329125	361	Merchant: Grandsmatt	🔥	Approved		2026-01-23 10:00:58 UTC
2026-01-23 10:00:59 UTC	https://x.com/i/status/2014635660649329125	361	Project: Bitbiasara (Kenya) KE	🔥	Approved		2026-01-23 10:01:00 UTC
2026-01-23 10:01:01 UTC	https://x.com/i/status/2014635660649329125	361	@jaygallardo2376	🔥	Approved		2026-01-23 10:10:19 UTC
2026-01-23 10:04:55 UTC	https://primal.net/e/nevent1qqsvaan3v8lc3289l	362	@jaygallardo2376	🔥	Approved	Duplicate A Payment already processed for this post (reaction change blocked)	2026-01-23 10:10:15 UTC
2026-01-23 10:05:04 UTC	https://primal.net/e/nevent1qqsvaan3v8lc3289l	362	@jaygallardo2376	🔥	Approved		2026-01-23 10:10:18 UTC
2026-01-23 10:10:16 UTC	https://primal.net/e/nevent1qqsvaan3v8lc3289l	362	Merchant: Grandsmatt	🔥	Approved		
2026-01-23 10:10:18 UTC	https://primal.net/e/nevent1qqsvaan3v8lc3289l	362	Project: Bitbiasara (Kenya) KE	🔥	Approved		
1047							
1048							
1049							
1050							
1051							
1052							
1053							
1054							
1055							
1056							
1057							
1058							

PoWBoT

Payments Approved & Sent

Reviewer: @jaygallardo2376 ✓
• HIDDEN → [TX_HIDDEN]

Merchant: Constanza ✓
• HIDDEN → [TX_HIDDEN]

Project: Bitcoin Githurai (Kenya) KE ✓
• HIDDEN → [TX_HIDDEN]

Logged to Payment Audit (rows 1042, 1045, 1046) 11:17

/stats 11:28 ✓

PoWBoT Statistics

View live statistics and leaderboards.

Interactive dashboard with project rankings, payment totals, and trends. 11:28

Main Menu

Payment Sent

Project: Bitbiasara (Kenya) KE
Amount: 21 sats
To: Dachar@blink.sv
Post:
<https://x.com/i/status/2014635660649329125> 11:56

Payments Approved & Sent

Reviewer: @jaygallardo2376 ✓
• HIDDEN → [TX_HIDDEN]

Merchant: Grandsmatt ✓
• HIDDEN → [TX_HIDDEN]

Project: Bitbiasara (Kenya) KE ✓
• HIDDEN → [TX_HIDDEN]

Logged to Payment Audit (rows 1047, 1049) 11:57

Payment Sent

Project: Bitbiasara (Kenya) KE
Amount: 21 sats
To: Dachar@blink.sv
Post:
<https://primal.net/e/nevent1qqsvaan3v8lc3289uppza704xdvm02jukf2alu0xkmgveldjn8lpqa6qukc> 12:00

Payments Approved & Sent

Reviewer: @jaygallardo2376 ✓
• HIDDEN → [TX_HIDDEN]

Merchant: Grandsmatt ✓
• HIDDEN → [TX_HIDDEN]

Project: Bitbiasara (Kenya) KE ✓
• HIDDEN → [TX_HIDDEN]

Logged to Payment Audit (rows 1050, 1052, 1053) 12:04

Menu Write a message... 0



Real Conversations

GLENN: "Blink payments sometimes fail"

CLAUDE: [Adds retry logic with exponential backoff]

GLENN: "Duplicates getting through"

CLAUDE: [Creates early duplicate detection]

GLENN: "What if Sheets goes down?"

CLAUDE: [Builds SQLite backup system]

GLENN: "Need low balance warning"

CLAUDE: [Adds balance monitoring and burnrate]

This is how development actually happens.

The Results

January 2026

7 23 120

Countries

Projects

Merchants



Increased Participation

24/7

Uptime



Increased Accuracy

Development Cost

Actual

- Initial testing
- From \$20/month for Claude
- \$0 developer

Accessible to anyone

VS

Traditional

- \$5k–15k developer
- 2–3 months timeline
- \$\$\$ maintenance

\$\$\$\$

How I Learned

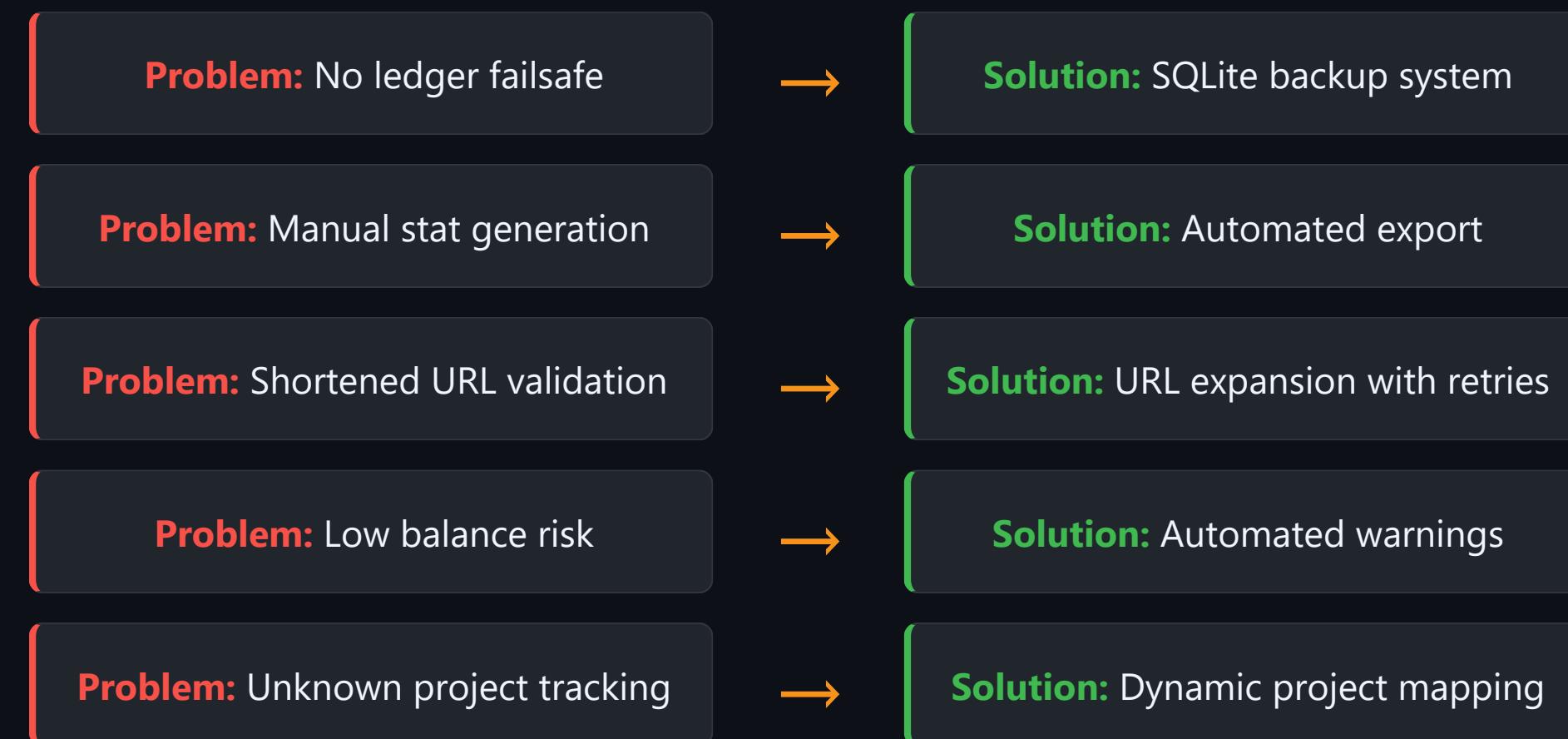
Traditional Path

- Traditional coding courses
- Computer science degree
- Studying textbooks
- Programming bootcamp

My Approach

- Learning by doing
- Immediate feedback
- Solving real problems
- Contextual understanding

Problems We Solved Together





I Didn't Need These First

- Python fundamentals
- JavaScript from scratch
- CSS specificity
- Git workflows
- API patterns
- Database design

I learned by building what I needed.

The Mindset Shift

Traditional Path

Learn → Build → Deploy → Maintain

6-12 months

AI-Assisted Path

Build + Learn → Deploy + Iterate

Days/Weeks

What You Still Need

- **Domain Knowledge** – Understand the problem
- **Critical Thinking** – Evaluate solutions
- **Persistence** – Iterate when stuck
- **Communication** – Explain what you want
- **User Empathy** – Build for real people

Technical skill is accessible. Your vision is essential.

AI Is Great For...

AI Excels

- Syntax & structure
- Bug fixing
- Refactoring
- Best practices
- Documentation
- Rapid prototyping

+

You Bring

- Architecture
- UX design
- Security review
- Innovative ideas
- Business logic
- Edge cases

The Bigger Opportunity

Circular Economies

- Custom tools
- Build immediately
- Your problems
- Your pace

Bitcoin Adoption

- Edge innovation
- Grassroots solutions
- Local solutions
- Rapid iteration

Communities

- Real problems
- No permission
- Share learnings
- Build together



What Could YOU Build?

- Merchant onboarding bot
- Education progress tracker
- Community directory
- Custom reward systems
- Impact dashboard
- Translation bot
- Event coordination
- Payment automation

All buildable by non-programmers now.



PoWBoT Stats

Stay humble, stack stats 

TOP PERFORMERS (24H)



1 Afribit Kibera	20 posts
2 Bitbiashara	12 posts
3 Bitcoin Ekasi	10 posts

TOTAL PAYMENTS

1 598

Merchants	525
Projects	525
Reviewer	548

APPROVAL RATE

96%

Approved	525
Rejected	23
Total reviewed	548

SINCE LAUNCH (2026-01-13)

14 days

Daily Averages	
Posts approved	38
Total payments	114

POWBOT DIFFICULTY ADJUSTMENT

743 blocks

Current block	933 904
Target block	934 647
Est. time	~149h 27m

HIGHLIGHTS

Active merchants	119
Top project	Afribit Kibera
Days active	14
Approval record (Jan 24)	72 posts
Countries active	7

TODAY (updated 21:22:39 UTC)

56 posts 56 approvals 0 rejections 168 payments



TODAY ON X

- X Bitcoin Dua GH Preso's Food and Drinks 19:21
- X Afribit Kibera KE Black and White Fries Corner 19:03
- X Afribit Kibera KE Black and White Fries Corner 19:00
- X Afribit Kibera KE Black and White Fries Corner 18:58
- X Afribit Kibera KE Sokoni Mboga 18:52

Show 21 more

TODAY ON NOSTR

- Bitcoin Dua GH Preso's Food and Drinks 19:20
- Afribit Kibera KE Black and White Fries Corner 19:18
- Afribit Kibera KE Black and White Fries Corner 19:17
- Afribit Kibera KE Black and White Fries Corner 19:16
- Afribit Kibera KE Sokoni Mboga 19:14

Show 25 more

LAST 7 DAYS

388 posts 377 approvals 11 rejections 1 142 payments

DAILY ACTIVITY





LIGHTNING PROVIDERS



COUNTRIES

7 active

- KE Kenya (6) NG Nigeria (5)
- ZA South Africa (4) GH Ghana (3)
- ZM Zambia (2) MZ Mozambique (2)
- BI Burundi

PLATFORMS



PROJECT LEADERBOARD

1	Afrabit Kibera KE	107 posts ▼
2	Bitbiashara KE	91 posts ▼
3	Bitcoin Ekasi ZA	53 posts ▼
4	Bitcoin Githurai KE	50 posts ▼
5	Bitcoin Ekiti NG	36 posts ▼
6	Bitcoin Chama KE	22 posts ▼
7	BitKwa NG	21 posts ▼
8	Bitcoin Ikorodu NG	18 posts ▼
9	Bitcoin Dombo MZ	17 posts ▼
10	BitJR Academy ZM	17 posts ▼

[Show 13 more](#)

MERCHANT LEADERBOARD

1	Black and White Fries Corner	38 posts ▼
2	Haven food court	21 posts ▼
3	Grandsmatt	17 posts ▼
4	Orero shop	16 posts ▼
5	Kwallos Shop	16 posts ▼
6	Emmy Store	14 posts ▼
7	Chips point	13 posts ▼
8	Mama Nonny Shop	12 posts ▼
9	Jennifer Musya	11 posts ▼
10	Bridgeway Shop	11 posts ▼

[Show 109 more](#)

Your Journey Starts Here

1. Identify a real problem

What slows your project down?

2. Describe the solution

How should it work?

3. Start a conversation

"Help me build..."

4. Iterate and learn

Build → Test → Improve

5. Ship it

Real users, real feedback

YOU:

"Track merchant onboarding progress"

CLAUDE:

[Builds signup flow tracker]

YOU:

"Send Bitcoin tips to students"

CLAUDE:

[Creates reward distribution system]

YOU:

"Calculate our runway and burn rate"

CLAUDE:

[Builds financial projections]



Our Stack (All Free/Low-Cost)

Development

- Claude Opus/Sonnet
- VSCode
- Python
- HTML/JavaScript
- python-telegram-bot

Cost

~\$20/mo

(Just Claude)

Services

- Blink API
- Google Sheets
- Nostr SDK
- GitHub Pages
- SQLite



Why We Share Our Journey

- **Share Learnings** – What worked, what didn't
- **Open Approach** – How we think about problems
- **Community Support** – Help others get started
- **Inspire Action** – Show what's possible

Your success helps everyone.



You Don't Need Permission.
You Don't Need A Developer.
You Just Need To Start.

What's Next For PoWBoT

- Dedicated server
- Better error handling
- Analytics v2
- Dashboard improvements
- Weekly/monthly reports
- Additional platform support
- Scaling for other projects
- Additional integrations
- Enhanced user features
- Performance optimizations
- Algorithmic difficulty adjustments
- Further automation

Keep building and learning with Claude, one conversation at a time.



Let's Build Together

Try It

Start building today

Share It

What can you solve?

Connect

Help others start

GitHub: BitcoinUbuntu

X: @BitcoinUbuntu

Dashboard: bitcoinubuntu.github.io/powbot-stats