

Bitcoin/Lightning Car Wash

Nashville BitDevs August 2023
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Context

- Car wash industry / technology
- Jeff purchased 2-bay car wash Shine Brite Car Wash in Ashland City TN
- Wants to accept Bitcoin for either bay in Unattended Environment
- Wants customer to be able to buy Basic, Deluxe, and Ultimate wash
- Magic internet money interacting with physical objects!

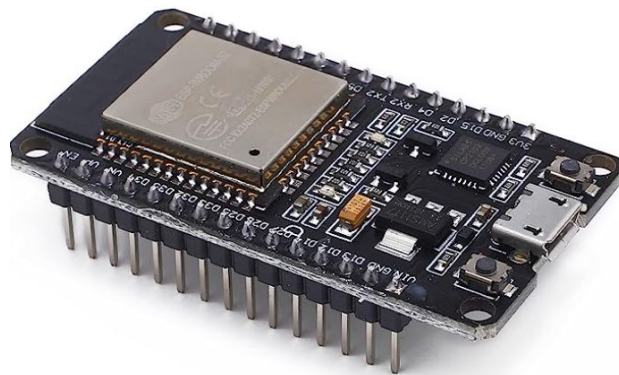


Technical Approach

- Used Axel Hamburch's bitcoinSwitch open source project as starting point
 - Goal to reuse as much existing software + hardware as possible
 - Avoids reinventing the wheel
 - Increases likelihood of collaborative support
- Used Arduino to program ESP32 microcontrollers
- Microcontrollers are configured
 - To connect to wifi
 - To monitor LNbits web socket
- LNbits: FOSS Bitcoin Lightning Accounts System *with Extensions*

Hardware

ESP32 microcontroller



5V Relays



5VDC USB power source



Software

- Arduino v1.8.19
- bitcoinSwitch v0.1
- LNbits 0.10.9
 - LNURLDevice extension
 - One device per car wash type
 - per bay (6 total)

switch

Title
carWashPrototypeA

Wallet *
57cda4302eca4e10946a65d6a [REDACTED]

Fiat currency for device
USD

+ -

Amount (USD) *
0.01

duration (ms)
3000

GPIO pin
12

UPDATE LNURLDEVICE CANCEL

LNbits

Wallets

robertAutomation2
595 sats

+ Add a new wallet

Extensions

LNURLDevice

LNURLp

Extensions

NEW LNURLDEVICE INSTANCE


LNURLdevice

Search

EXPORT TO CSV

	title	id	key
	carWashPrototypeC	GJJmdjbaHssw3TPNGrz4M	[REDACTED]
	carWashPrototypeA	N38mst7d2YE25XwQ4gCx7	[REDACTED]
	carWashPrototypeB	cd7rc77FiznYfWCCTUcEj	[REDACTED]

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COPY LNURL ✓ Websocket connected

SWITCH PIN 12

CLOSE

Demonstration

- Scan QR code with Lightning-enabled wallet
 - Have used Wallet of Satoshi, Phoenix, Mutiny in testing
 - BlueWallet, Muun, and Coinomi do not work
- Pay invoice (set to 0.01USD in satoshis for demo)
- LED light corresponding to the “selected wash” becomes lit

ULTIMATE WASH (red LED)



DELUXE WASH (green LED)



BASIC WASH (blue LED)

