

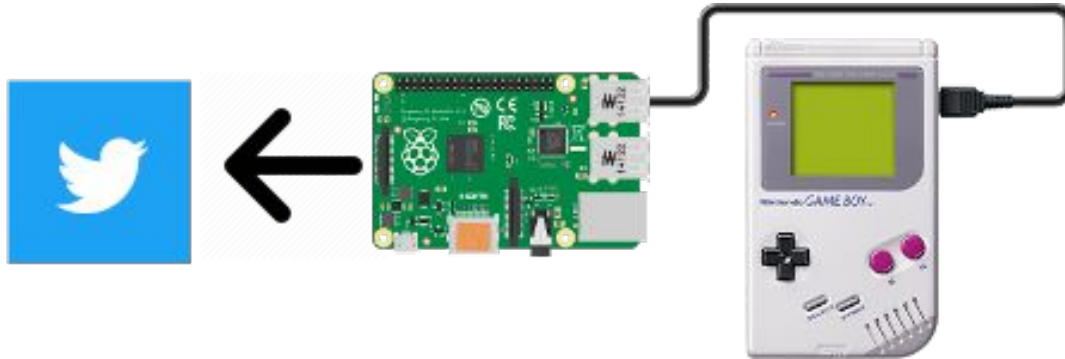


GB2Twitter

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What is GB2Twitter?

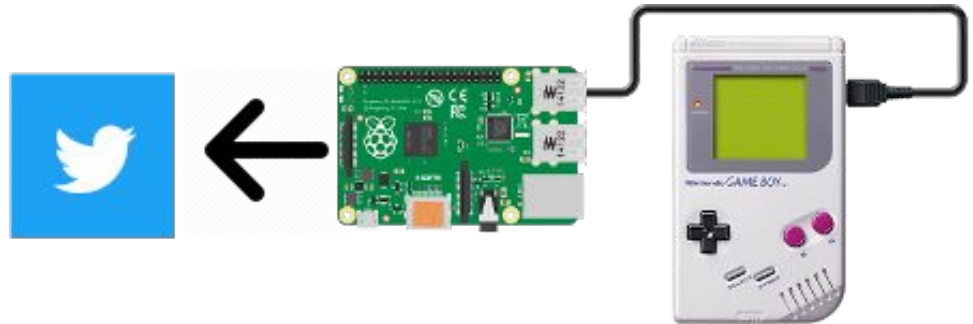
GB2Twitter is a twitter client written for the Nintendo Game Boy (DMG-01)

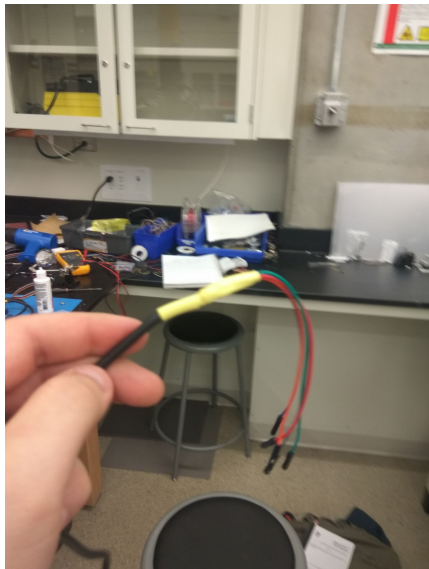




Original Scope

- Send and receive tweets
- Communicate with raspberry pi/ESP32 GPIO over Game Boy link cable





GAME BOY
PROGRAMMING MANUAL
Version 1.1

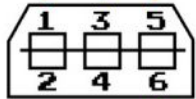


1. CONTROL REGISTER SUMMARY

Register	Address	D7	D6	D5	D4	D3	D2	D1	D0	Comment
P1 Port P15.. P10	FF00			P15	P14	P13	P12	P11	P10	R/W Control of transfer data by P14, P15
SB Serial transfer register	FF01									R/W Transfer data
SC Serial control	FF02	Transfer start 0: No start 1: Start						Clock speed 0: 0Hz 1: 256 kHz	Shift clock 0: External 1: Internal	R/W In double- speed mode clock speed also doubled

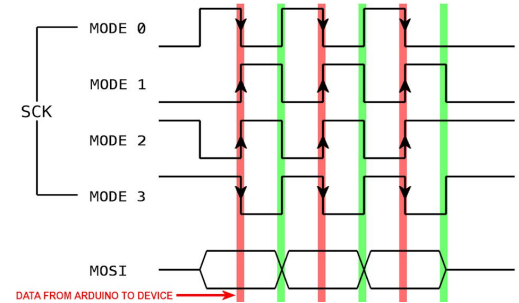
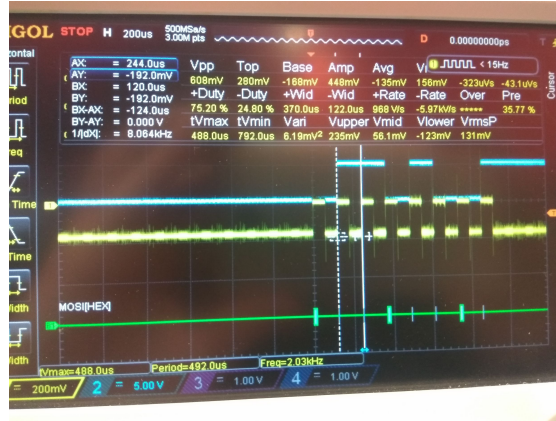
GB Serial

GAMEBOY
LINK CABLE



1. +5V
2. SERIAL OUT
3. SERIAL IN
4. RESERVED
5. CLOCK OUT
6. GROUND

* LOOKING AT FRONT



Game Boy uses
modified mode 3
SPI

to
Arduino

0	0	0	0
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1111

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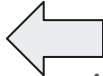
from
Arduino

<https://www.insidegadgets.com/2018/12/09/making-the-gameboy-link-cable-wireless-packet-based/>

<https://forum.arduino.cc/index.php?action=dlattach;topic=230359.0;attach=75761>

Original Scope

- Send and receive tweets
- Communicate with raspberry pi/ESP32 GPIO over Game Boy link cable



- Different Logic voltages (3.3V vs 5V)
- Dealing with both low level serial decoding and high level communication with twitter can be difficult

I have a limited amount of time to work on this!

- Hard to implement 2 way serial communication negotiation
- Not a lot of space on screen or video memory to display tweets
- Designing an interface for dealing with other people's tweets is complicated



Final Scope

- Send tweets only
- Send string one direction over Link cable
- Decode Game Boy serial data with arduino microcontroller
- Communicate with Twitter API Using python

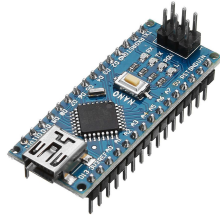


Game Boy ROM
written in GBZ80
ASM



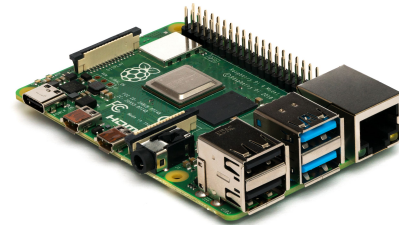
GB Link
Cable

SPI Serial
Decoding done on
Arduino in C



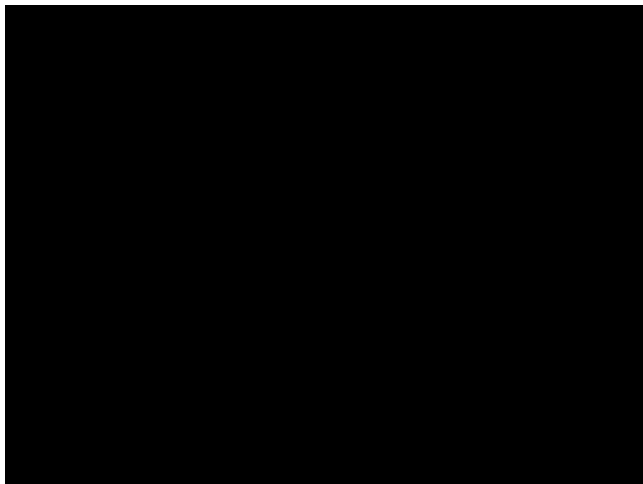
USB
Serial

Communication with Twitter
done in Python with Twitter API
wrapper on modern computer





Demo



<https://twitter.com/Pegmode2>

What I learned; Old vs New!

```
Terminal - dan@ArchSuxMachine:~/Documents
File Edit View Terminal Tabs Help
[dan@ArchSuxMachine Documents]$ python3 GB2Twitter.py
Waiting for Packet:
Message:The quick brown fox jwÃ02ÛÃİpßèiÛ
Sent from my Nintendo Game Boy
[dan@ArchSuxMachine Documents]$
```

4Mhz CPU from 1976 running asm
Vs
16Mhz MCU from 2010's running C code

Assembly is
REALLY fast

Assembly is
really tedious

```
.checkTransfer
    ld a,[rSC]
    and %10000000
    jp nz,.checkTransfer
    ;wait!
    BREAKPOINT
    ld b,$FF ; load 255
.waitLoop ;6120 total cycles
    rlc a; 8 cycles
    dec b; 4 cycles
    jp nz,.waitLoop; 16 or 12 cycles
    jp .l1
.exit
```



Thanks!

Github: <https://github.com/Pegmode/GB2Twitter>

Special Thanks to:

Brendan Gluth, Taylor Knopp, The Shack, Edward “DevEd” Whalen, GB Dev Discord