



Auto Controller Manual

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1. Getting Started

1.1 Auto Controller

Auto Controller is a collection of programs that uses a microcontroller emulated as a Pro Controller and automate various tasks on games on Nintendo Switch. After v5.0.0, there are two types of programs:

1. **Native Programs:** These programs run by the microcontroller alone, they are limited to relatively simple tasks (still a large collection so don't worry), user must unplug the microcontroller to stop it from running
2. **Smart Programs:** These programs make use of feedback from capture cards allowing more complicated tasks, and able to terminate the program if needed.
You are required know how to run Native Programs before this, no exception!

1.2 Hardware Requirement

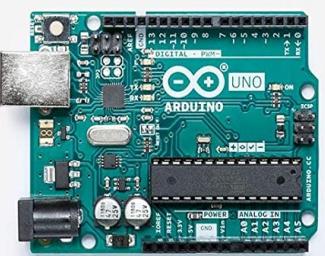
1.2.1 Mandatory Components

This section list the essential hardware you need for both **Native Programs AND Smart Programs.**

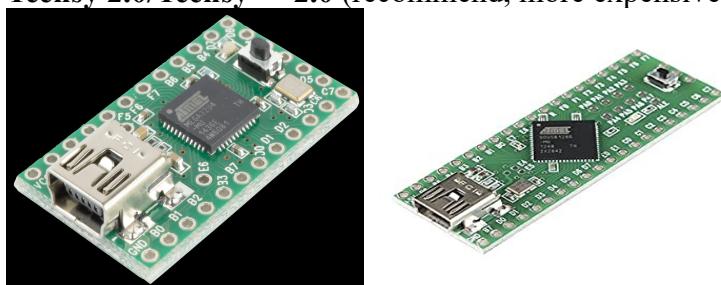
Before you start, it is noted that you MUST have a laptop or PC running on **Windows 10**, do NOT use Windows 11 since it has compatibility issues, downgrade to 10 if possible. For MacOS and Linux only Native Programs are supported, and Auto Controller Helper will not work.

Next you will need to buy one of the following microcontrollers:

1. **Arduino Uno R3** (highly recommended, tested)



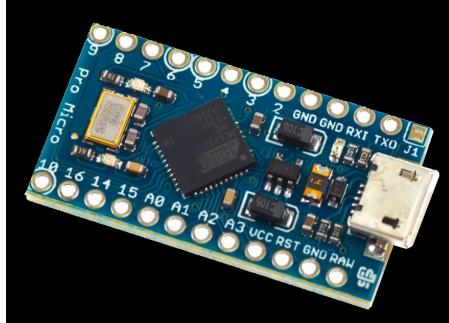
2. **Teensy 2.0/Teensy++ 2.0** (recommend, more expensive)



3. Arduino Leonardo (preferred over Pro Micro)



4. Arduino Pro Micro



There are knockoffs for most Arduino boards as a cheaper alternative like Elegoo etc., **but sometimes the microchip required (atmega16u2) may not be probably bootloaded by the manufacturer so you are HIGHLY RECOMMENDED to buy the Arduino from the official site instead.**

1.2.2 Optional Components

This section lists components you may/may not need depending on your Switch type and the microcontroller you have bought.

1. **Metal Wires/Paper Clips (Arduino Only):** This is needed for all Arduino types, this is needed in order to restart and install new programs into the board
2. **USB-A to USB-B Connector (Arduino Uno R3 Only):** Some sellers may not provide the connection wire for Arduino to PC, for Uno R3, you may need to buy this separately



3. **USB 2.0 to USB Micro (Arduino Pro Micro/Leonardo):** For these two boards, you may need to buy this wire, if you are an Android user, this is the regular charging cable (before USB-C migration)
4. **USB 2.0 to USB Mini (Teensy):** For teensy you may need to buy this wire, this is NOT the same cable that charges phones, check the image below



USB Mini (YES) USB Micro (NO)

5. **USB 3.0 A to C Adapter:** If you have a Switch Lite or if you wish to run Native Programs in handheld mode, this allows you to connect your board at the bottom of the Switch



Alternatively, you can also buy the one below.

6. **HORI Dual USB Playstand (Switch Lite):** This stand allows you to charge your Switch and also provide an additional USB port for connecting microcontroller, this is ideal if you want to run Native Programs for long periods of time



Now that you have all the hardware needed to run Native Programs, proceed to **section 1.3** for Native Program Tutorial.

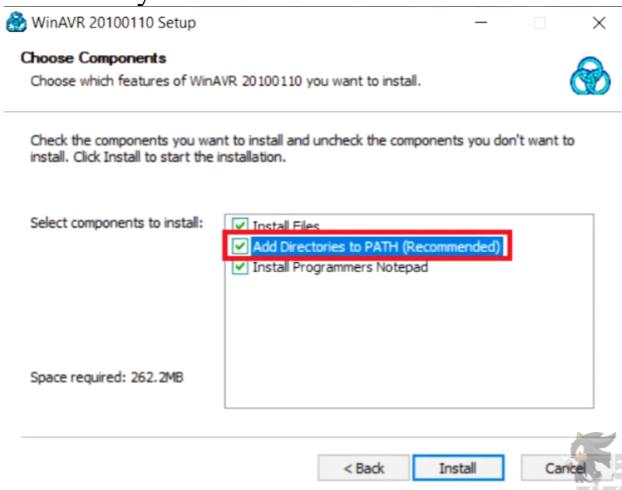
1.3 Native Program Tutorial (Windows)

1.3.1 WinAVR

First you will need to install **WinAVR**, this is required to compile programs with Auto Controller Helper, you can download it from here:

<https://sourceforge.net/projects/winavr/files/>

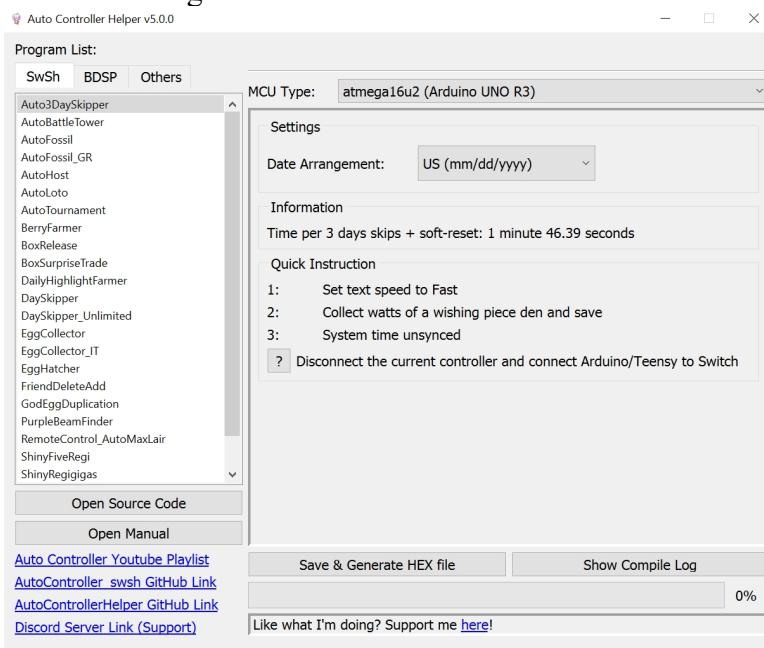
While installing, make sure you check the **Add Directories to PATH (Recommended)**, otherwise you will need to reinstall.



You are recommended to install it in the default directory `C:/WinAVR-20100110`

1.3.2 Auto Controller Helper

Launch **AutoControllerHelper_Launcher.exe**, this will open the main program which look something like this:

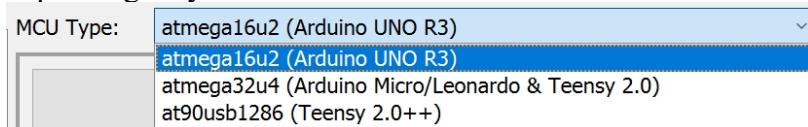


- **Program List:** Select available programs here, press the tabs at the top for programs for different games
- **MCU Type:** Select the appropriate MCU for your microcontroller
- **Settings:** This contains the settings for the current selected program
- **Information:** This contains the estimated time the program will take, error messages or any additional information for the program
- **Quick Instruction:** A quick checklist of what you need to do before running the program, but you are still highly recommended to read the manual for full details as instructions for each program are unique and very different from each other
- **Save & Generate HEX file:** Generate .hex file with current settings to install into your microcontroller
- **Show Compile Log:** Show details of compilation, this is useful in case there are errors
- **Open Source Code:** Open the folder that contains the source code for the current selected program
- **Open Manual:** Open this pdf you are reading
- **Auto Controller Youtube Playlist:** Link to playlist for Auto Controller related videos
- **AutoController_swsh GitHub Link:** Link to the release repository of Auto Controller
- **AutoControllerHelper GitHub Link:** Link to the source code for Qt user interface program for Auto Controller Helper
- **Discord Server Link:** Link to discord channel where me and a few friend of mine can help

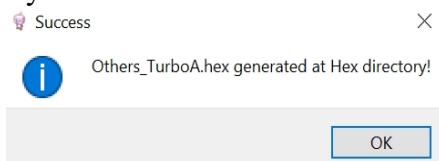
Note: When extracting AutoController release archive, make sure to extract to directory with basic ascii characters, meaning the directory should not have Chinese, Japanese, Korean characters etc., otherwise there might be issue with Auto Controller Helper and other programs.

1.3.3 Generate .hex File

If this is your first time doing this, you should try **Others_TurboA** program first. Once you select the program and set the settings your want, select the correct MCU type depending on your microcontroller:



Press **Save & Generate HEX file**. If you have installed WinAVR correctly, a .hex file should be generated in the “Hex” folder. If any error occurs, check the compile log and try to locate the issue.



1.3.4 Installing .hex into microcontroller

This section changes depending on what microcontroller you own, please skip to the appropriate section.

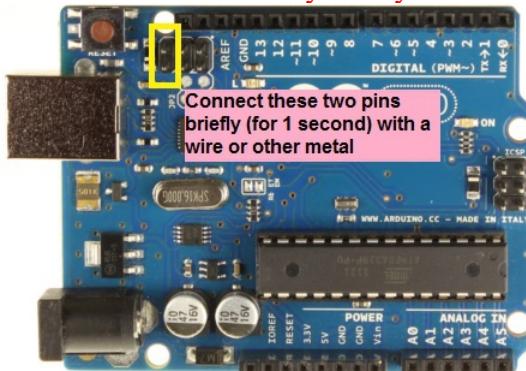
Arduino Uno R3:

1. (One time only) Download and install FLIP from here:

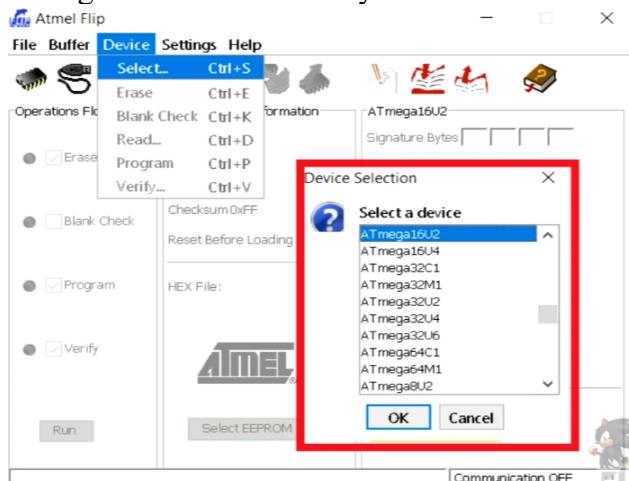
<https://www.microchip.com/en-us/development-tool/flip>

You may also need to install Java Runtime Environment as suggested, **note that this will NOT work in Windows 11, since Windows 10 is recommended**

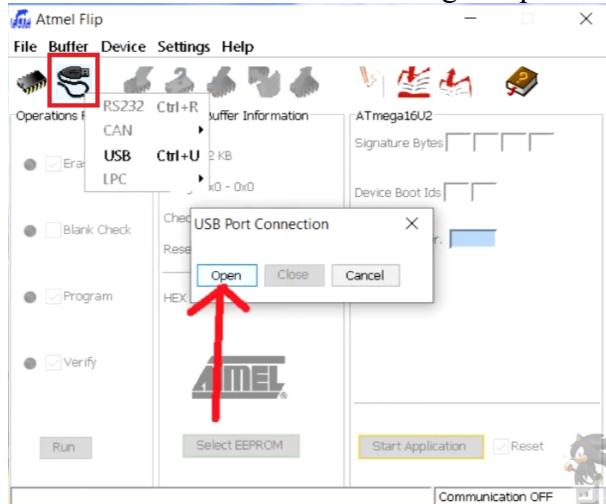
2. Connect Uno R3 with USB-A to USB-B cable to your computer, use a conducting object to briefly connect the RESET and GND pin, you should hear the USB unplug and plugin sound, this process is call “**Flashing**” or “**DFU Mode**”. If you don’t see those 2 pins, you might have bought the wrong board. You **MUST** do this every time you want to install a new program



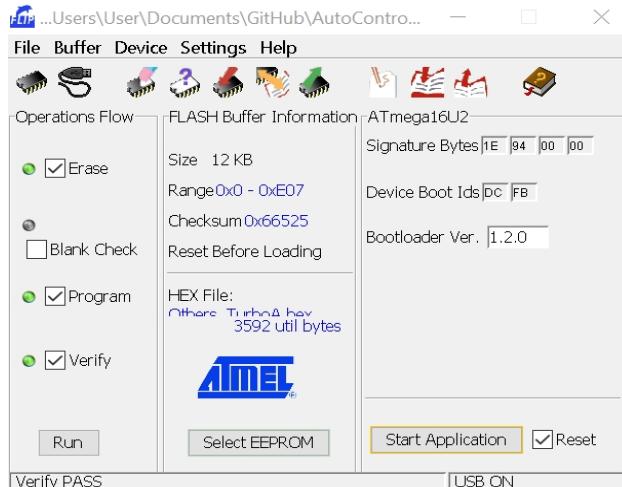
3. (One time only) The first time you use this, you must install the driver for Atmega16u2 chip before you can use it. Go to **Device Manager** in Control Panel, under Other devices you should see an “Unknown Device”, **if you don’t see it despite flashing the two pins, your board is defective and cannot run any programs**. Right-click -> Update Device Software -> Browse my computer for driver software, select the folder *C:/Program Files (x86)/Atmel/Flip 3.4.7/usb* and install, the device should now be registered as **Atmega16u2**
4. Run FLIP program, go to Device -> Select... And select ATmega16U2, this setting should remain after you did it once



- Press the 2nd icon, choose USB and press Open, if the Arduino has correctly entered DFU mode, it should be able to connect successfully, on the board you should see the RX and TX LED lights up



- Go to File -> Load HEX file... and select the .hex file generated earlier, if your directory that contains the hex file has Chinese/Japanese/Korean, this may fail to load, move them to or install Auto Controller Helper to a different directory
- Press Run, if successful, it should look something like this:



If a red light instead of green shows up next to Program, reopen FLIP and try again.

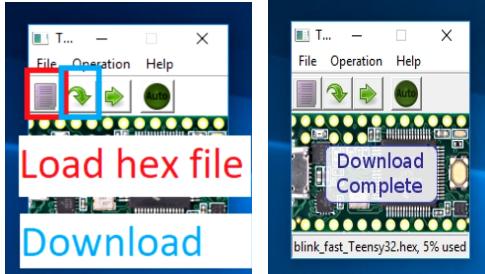
- Unplug the board from your computer, and head to **section 1.3.5**

Teensy 2.0/Teensy++ 2.0:

1. Download Teensy Loader from here: <https://www.pjrc.com/teensy/loader.html>
2. Connect Teensy to your computer with USB 2.0 to USB mini adapter
3. Press the button on Teensy to enter program mode, the first time you have to wait for Windows to install drivers



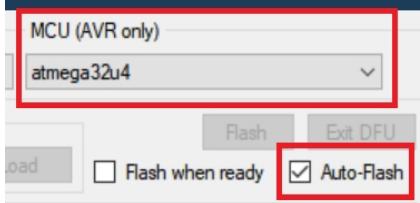
4. Click to first icon to select the .hex file generated earlier and press the 2nd icon to install the program into Teensy



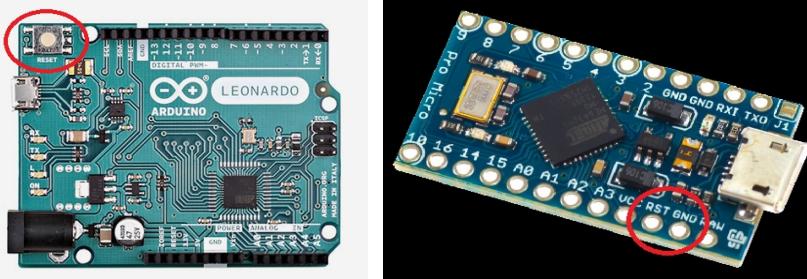
5. Unplug the board from your computer, and head to **section 1.3.5**

Arduino Pro Micro/Leonardo:

1. Download QMK Toolbox: https://github.com/qmk/qmk_toolbox/releases
2. Open the .hex file generated earlier
3. Change the MCU to atmega32u4 and check the “Auto-Flash” checkbox



4. Connect Arduino Pro Micro/Leonardo to your computer with micro USB, you may need to wait for it to install driver the first time
5. Reset the board: For Leonardo, press the button on the top left; for Pro Micro, you need to briefly connect RST and GND pinholes (use paperclip or tweezers)



6. QMK Toolbox should automatically install the hex file into the board and should show a bunch of logging and should show this at the end:

```
avrduke.exe: verifying ...
avrduke.exe: 8336 bytes of flash verified

avrduke.exe done. Thank you.
```

7. Unplug the board from your computer, and head to **section 1.3.5**

1.3.5 Running the Program on Nintendo Switch

Before anything, you should make sure you have followed the instruction of the program you are using, and setup the game/system to the exact position required.

Pokemon games usually only allow one controller connected at a time, if you try to connect a 2nd one it will not connect. Before you plug your board to the Switch, you must disconnect the external controller you are playing with.

To disconnect, press the sync button on the wireless controller, note that if using detached joy-cons, you have to press the sync button on BOTH joy-cons. After unsyncing, the green light should be turned off. For wired controllers, simply unplug it from the Switch. This process is not needed if you are playing in handheld mode.



Now that no controllers are connected, you can plug your microcontroller directly to the Switch, either to the dock or under the Switch using a USB-C adapter, the program should now start running.



To stop the program, simply unplug the board from the Switch or take the Switch out from the dock. If you want to run other programs, start from **section 1.3.3** again.

1.3.6 While Program is Running

When the program is running, there are things you need to be aware that you cannot do otherwise it might cause the program to crash or unintended delays:

- Do not undock your Switch (unless you are terminating the program)
- Do not connect/disconnect HDMI cable
- Do not switch source of your TV
- Do not turn on/off your TV

Doing any one of these above will cause the program to miss input when Switch is attempting to output/cancel HDMI. If you have to use the TV for something else or want to turn it off, you have the following options:

- Start the program with the TV already off or switched to another channel, but when you decided to change channel to your Switch, it might break the program, so make sure the program is finished by estimating how long it would take to finish
- Dim your TV all the way down after you started the program
- Switch channel when there is no input from the program (when a battle starts/egg is hatching etc.)

1.4 Native Program Tutorial (MacOS/Linux)

Note: This section is written base on other tutorials and not properly tested, this may improve the time goes on. The information I found for Arduino Leonardo and Pro Micro are insufficient, so please use Arduino Uno R3 or Teensy instead.

Most information are base on: <https://github.com/shinyquagsire23/Switch-Fightstick>

1.4.1 Install Various Programs

First install homebrew from <https://brew.sh/>

Next, you need to install AVR, run the following commands in a terminal:

1. brew tap osx-cross/avr
2. brew install avr-gcc
3. brew install avrdude

1.4.2 Modifying Program Settings

Since Auto Controller Helper does not work, you will need to change settings for the programs manually. Go to “Source Code” -> “Bots” -> PROGRAM NAME, and open **Config.h** file. If the program does not have any settings the file will be empty and you can ignore this part.

Here you will find the settings for the program, you will need to check the meaning for each parameter in the program instructions below, you must follow the exact same syntax like having a semi-colon at the end of each line.

```
Config.h
1 // WARNING: You are not advised to change this manually
2 // Please run AutoControllerHelper tool!!!
3
4 uint8_t m_JP_EU_US = 2;
5 uint8_t m_day = 21;
6 uint8_t m_month = 3;
7 int m_year = 2022;
8 int m_dayToSkip = 984;
```

1.4.3 Compling .hex File

To compile a .hex file, first you will need head to “Source Code” folder where you can find the **makefile** file, change the MCU to the appropriate one and TARGET to the program you want to compile.

```
12 # MCU Types:
13 # at90usb1286 for Teensy 2.0++
14 # atmega16u2 for Arduino UNO R3
15 # atmega32u4 for Arduino Micro/Teensy 2.0
16
17 # TARGET Types:
18 # ./Bots/<name>/<name>
19
20 MCU      = atmega16u2
21 ARCH     = AVR8
22 F_CPU    = 16000000
23 F_USB    = $(F_CPU)
24 OPTIMIZATION = s
25 TARGET   = ./Bots/WattFarmer/WattFarmer
26 SRC      = $(TARGET).c ./Config/Descriptors.c ./Config/uart
27 LUFA_PATH = ./LUFA
28 CC_FLAGS = -DUSE_LUFA_CONFIG_HEADER -IConfig/
29 LD_FLAGS =
```

Now you should be ready to compile, open a terminal window in the “Source Code” directory, type **make** and hit enter to compile. If everything goes correctly, it should let you know a .hex file is built successfully in the program folder.

1.4.4 Installing .hex into microcontroller

This section changes depending on what microcontroller you own, please skip to the appropriate section.

Teensy 2.0/Teensy++ 2.0:

This should be the exact same as **section 1.3.4**, please read the instruction from there.

Arduino Uno R3:

Follow the instruction here: <https://www.arduino.cc/en/Hacking/DFUProgramming8U2>

Arduino Leonardo/Pro Micro:

You can try following the instruction at the following link, but this has not been properly tested so you are strongly recommended to NOT use these two boards.

<https://github.com/shinyquagsire23/Switch-Fightstick>

Once you have installed the program, you can run in on the Switch, follow the instructions in **section 1.3.5**.

1.5 Smart Program Tutorial

1.5.1 Before You Start

In order to use Smart Program, which allows direct communication between your computer and Switch, you must have the following requirement:

1. You **MUST** know how to use Native Programs first, since it is required to use Smart Programs, there are no exceptions, read **section 1.4** if you haven't
2. You have a Windows 10 computer, currently MacOS/Linux are not supported and Windows 11 is having compatibility issues with Auto Controller
3. Your computer is sufficiently powerful, at least a dual-core process at 3GHz
4. You have a regular Switch, Switch Lite are not supported since it cannot output video
5. You are willing to spend at least \$20 to buy additional hardwares, see **section 1.5.2**

1.5.2 Additional Hardware Requirement

Capture Cards

There are three types of capture cards you can buy, but the general rule of thumb is it should be using **USB 3.0** if possible to get the best video quality and to minimize latency, the minimum resolution needs to be **720p 60fps**.

- **Pass-Through:** This is the best option for best video quality and if you are intended to do livestreams, but it can also be the most expensive ranging from \$40 to \$100. This can output video to PC and TV at the same time with very low latency, example brands like Elgato and Avermedia (right is the one I use)



- **Loop-Out:** This is a cheaper (around \$30) middle ground option that also provides output for PC and TV, however the output to PC can have larger enough latency that may cause direct control from PC very difficult, you should at least get one with USB 3.0 if you are going for this option.



- **No TV Output:** This is the cheapest option (around \$20) but have no TV output, meaning you can only play using the video display on your computer which will largely depend on the latency of the output. The video quality can also vary and may cause detection issues in Smart Programs. If you are able to find those with **USB 3.0** it should be sufficient enough to be used. **If you are buying this the video output is most likely going to be more saturated than usual, make sure you read section 1.5.6 on how to fix it!**



Once you got the capture card you should follow the instructions provided by the manufacturer and make sure everything is working before continuing. You can also check and see if you are able to see video output with streaming softwares like OBS because this will work similarly with Auto Controller. I will not go into detail on how to use OBS since there should be plenty of video tutorials on it.

HDMI cables

You should already have one when you first buy the Switch, but you may need a 2nd one for both capture card input and output.

CP2104 Serial Converter Chip

This is the **most essential component** for using Smart Programs, this is responsible to communicate between your Arduino/Teensy and computer, this should cost you only a few dollars. This chip belongs to CP210x family so CP2102 should also work but CP2104 is the one I use. There are also alternatives for UART modules (with TXD, RXD and GND pins) but unless you are sure it will work I just recommend you to get CP2104 to be safe.

After getting it, plugging it to your computer should automatically install the driver, if not you can get them here: <https://www.silabs.com/developers/usb-to-uart-bridge-vcp-drivers>



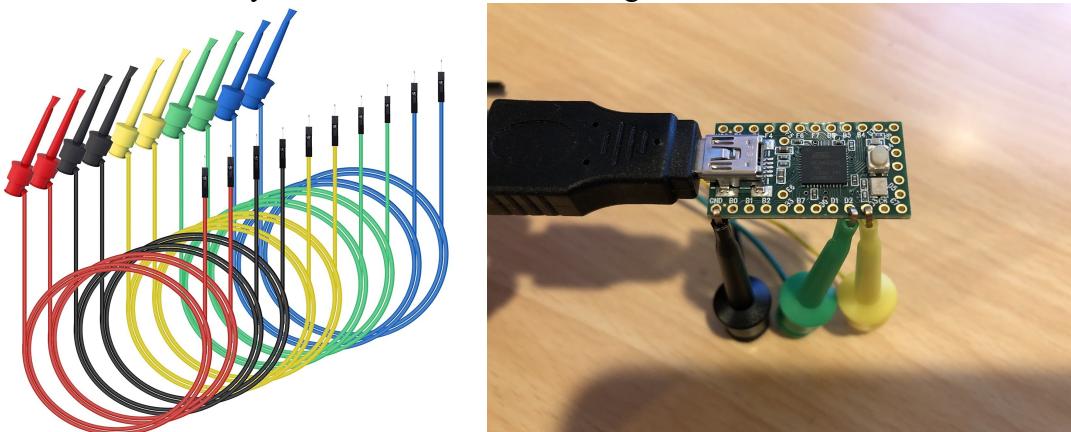
Male-to-Female Jumper Wires

When you buy CP2104 usually it comes with female-to-female wires, but if you have **Arduino Uno R3/Leonardo** which also has female headers, you will need male-to-female jumper wires to connect between them.



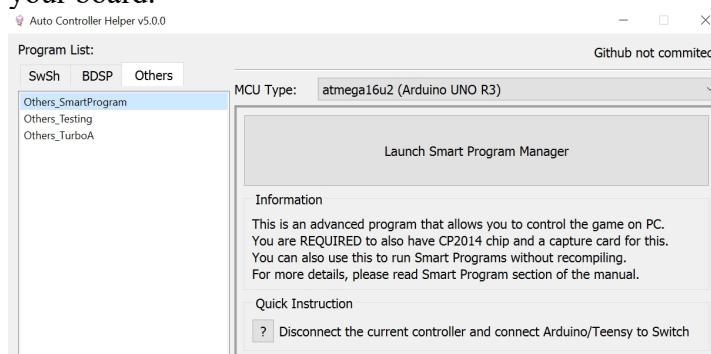
Mini-Grabbers

You will most likely need this if you have Teensy or Arduino Pro Micro. These are jumper wires that has a hook on one end so you can hook on to a pinhole without headers, which Teensy does not provide unlike Uno R3. Alternatively you can solder headers onto the board but unless you know how to do soldering, do not bother.



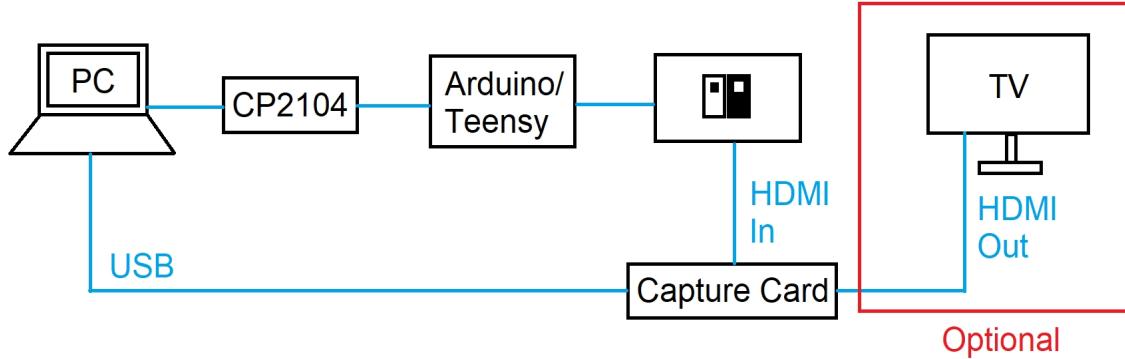
1.5.3 Installing .hex File For Smart Program

This is the exact same process for Native Program, go to Others tab in Auto Controller Helper, compile Others_SmartProgram with the correct MCU type and installing it to your board.



1.5.4 Connecting Everything Together

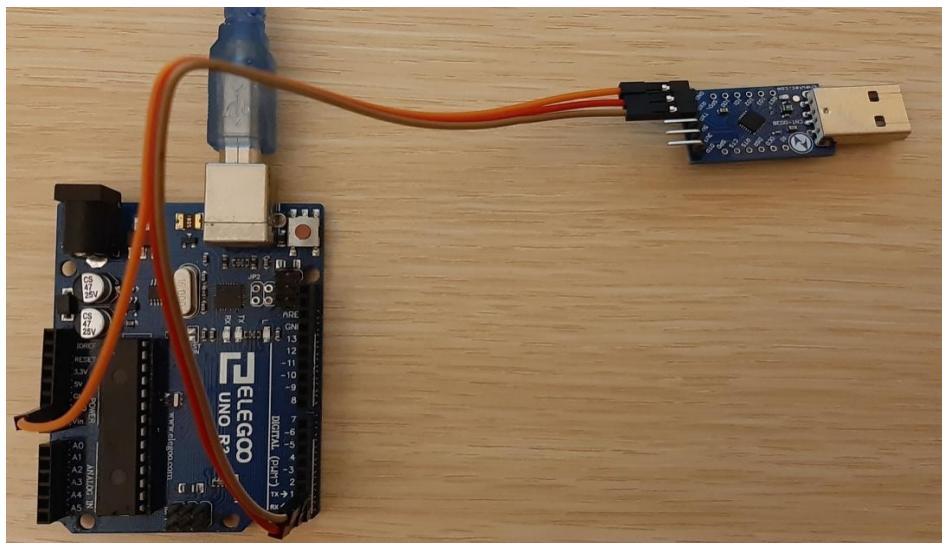
At the end of this section, you should expect to have connection like this diagram, some components are optional depending on the capture card you got.



Connecting CP2104 with Arduino Uno R3/Leonardo

Using the male-to-female jumper wires, make the following connections, **color of the wires do not matter as long as you are making the correct connections:**

- TXD pin on CP2104 to **TX -> 1** header on Arduino
- RXD pin on CP2104 to **RX <- 0** header on Arduino
- GND pin on CP2104 to any **GND** header on Arduino



Connecting CP2104 with Arduino Pro Micro

Using the female-to-female jumper wires and the mini-grabbers, make the following connections, **color of the wires do not matter as long as you are making the correct connections:**

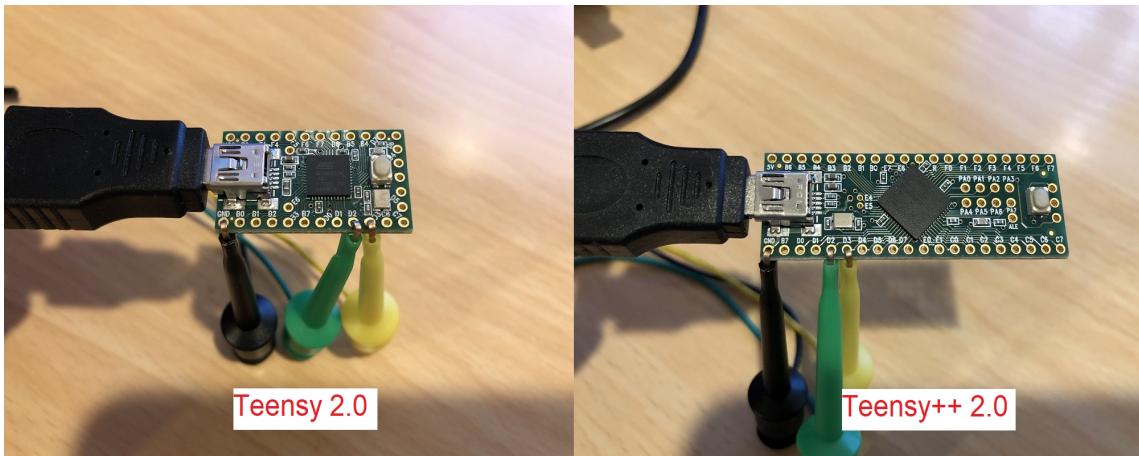
- TXD pin on CP2104 to **RX1** pinhole on Arduino
- RXD pin on CP2104 to **TX0** pinhole on Arduino
- GND pin on CP2104 to any **GND** pinhole on Arduino



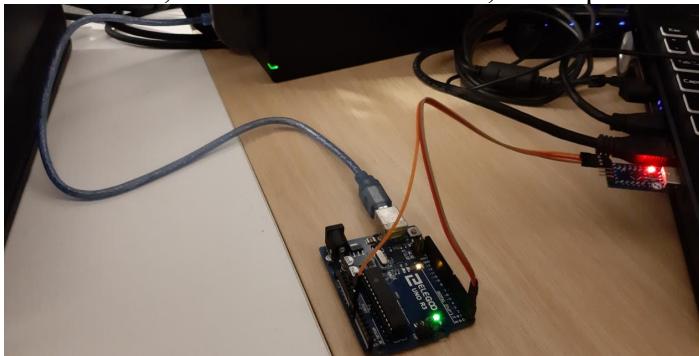
Connecting CP2104 with Teensy 2.0/Teensy++ 2.0

Using the female-to-female jumper wires and the mini-grabbers, make the following connections, **color of the wires do not matter as long as you are making the correct connections:**

- TXD pin on CP2104 to **D2** pinhole on Teensy
- RXD pin on CP2104 to **D3** pinhole on Teensy
- GND pin on CP2104 to any **GND** pinhole on Teensy

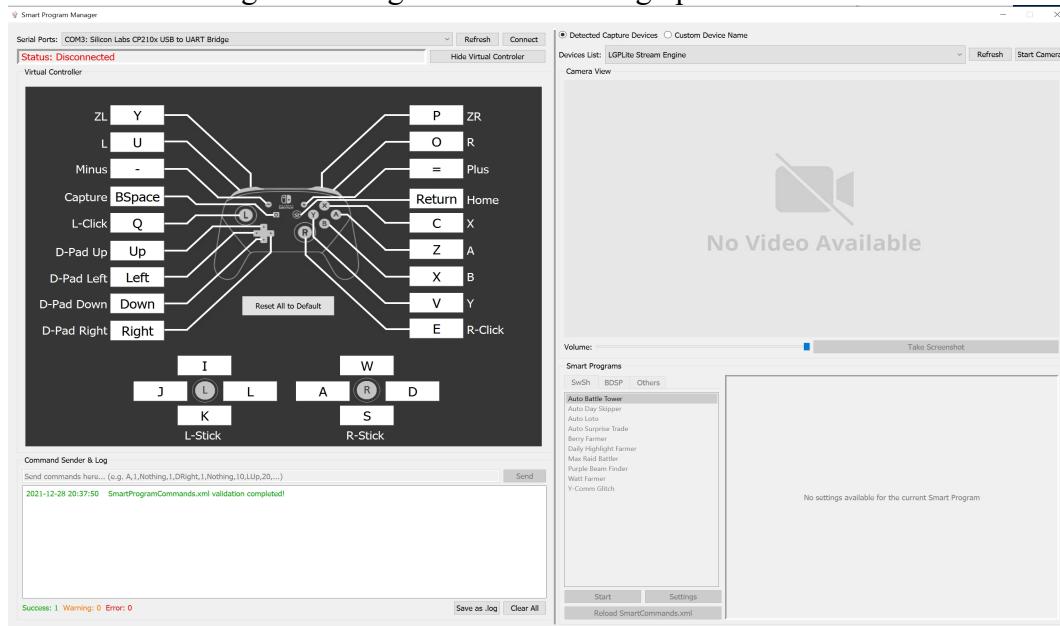


Once you have all the wiring finished, connect the USB end on Arduino/Teensy to the Switch dock, CP2104 USB end to PC, and capture card connected, you are ready to go.



1.5.5 Smart Program Manager

You should have installed the .hex file for Smart Program at this point, now click on Launch Smart Program Manager and should bring up this window:

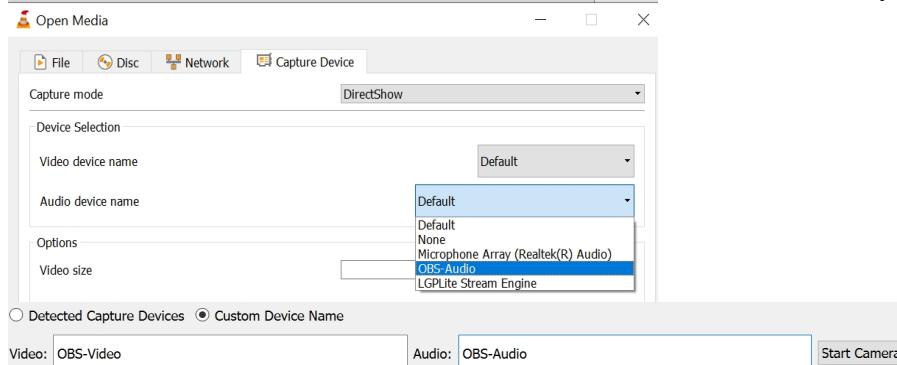


Start by selecting the correct serial port and press **Connect**, it will attempt to communicate with Arduino/Teensy and it will connect after 0.5s if feedback was established. If fails check the following:

- Have SmartProgram.hex installed to the board
- Have correct wire connections between the board and CP2104 chip
- Connect the board to the Switch AFTER disconnecting all other controllers

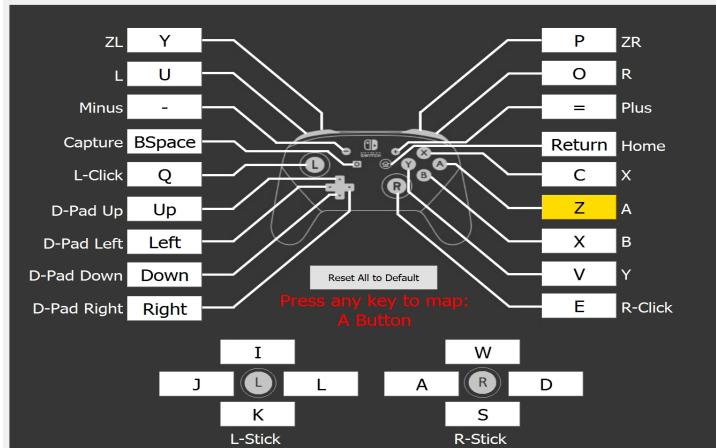
Next select the capture card device and press **Start Camera**, you must make sure no other applications are occupying the capture card (like OBS), otherwise it will not start.

If there is no audio output, that means the video device name is not the same as audio device name. For that you will need to download **VLC player** then go to Media -> Open Capture Device... Here you can check the video and audio device names, then go back to Smart Program Manager, select **Custom Device Name** and manually input the names.



1.5.6 Testing Keyboard Controls

Now you should be able to control the game with keyboard, you can change the button layout by pressing on the key buttons and map the key you want. You can also hide the controller tab by pressing **Hide Virtual Controller** to view the Log more. (Side note: You can also control with keyboard without **Start Camera** if you have TV output)



If the control is completely wrong and doing weird stuff, this can happen if you got a 2nd hand Arduino Uno R3 board, there is a high chance the Atmega328p chip is interfering with the program. You will have to remove the chip in the picture below. Be careful to alternate prying on left and right to avoid breaking the pins.

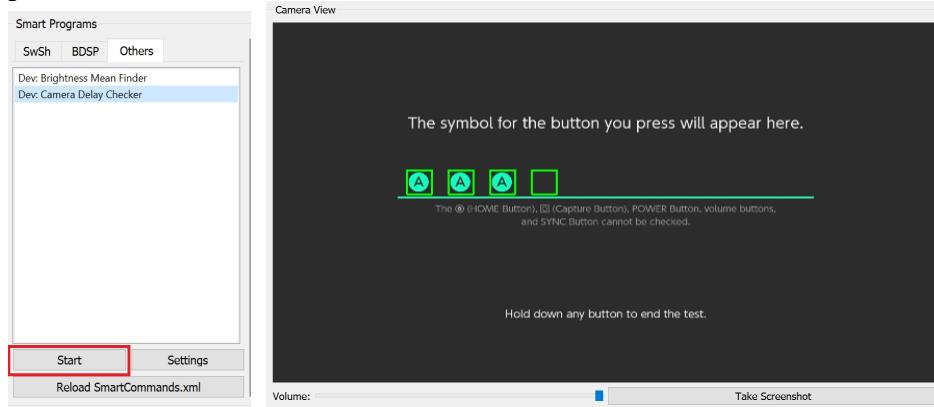


If the chip is not detachable (SMD revision for Uno), you will need to do the following:

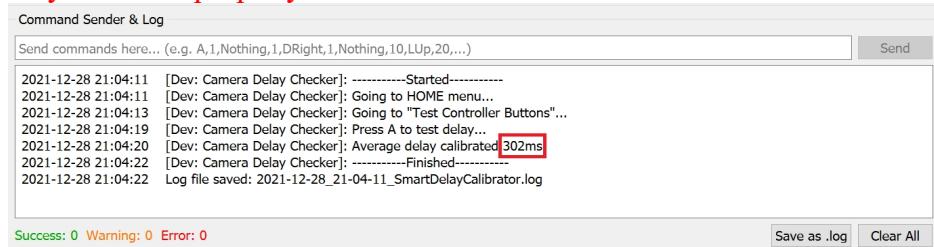
1. <https://support.arduino.cc/hc/en-us/articles/4408887452434-Flash-USB-to-serial-firmware-in-DFU-mode> Download the original Arduino firmware and flash it like you would with Flip
2. <https://docs.arduino.cc/learn/programming/sketches> Follow this guide and update an empty sketch to the board (with setup and loop empty)
3. Re-flash Smart Program hex file

1.5.7 Testing Camera Delay & Color Detection

Now let's test if everything is working correctly, we will test this by running the **Camera Delay Checker** program, go to Others tab, select **Dev: Camera Delay Checker** and press **Start**.



This program will go to the **Test Controller Buttons** menu and press A four times and calibrate the delay of the video output of your capture card. If successful, it should output the delay time in the Log window. **If the delay is above 1000ms, other Smart Programs may not work properly.**



If the program is unable to detect Home screen properly, or any other Smart Program got stuck, your capture card might be outputting a slightly higher saturation video than usual, this has been observed to happen to most USB capture cards with no TV output.

Normal Output:



High Contrast Output:



For this you will have to run **Dev: Color Calibrator** smart program. You will need to take a screenshot of a battle in BDSP (like the ones above). Then click on **Adjust Video Effects** and change the value until all the detections return green, you should only need to adjust **Saturation** and **Hue**.

Camera View

Volume: Take Screenshot Adjust Video Effects

Smart Programs

<input checked="" type="radio"/> SwSh	<input type="radio"/> BDSP	<input type="radio"/> Others
Dev: Brightness Mean Finder		
Dev: Camera Delay Checker		
<input checked="" type="radio"/> Dev: Color Calibrator		

Use this if you are having detection problems, take a screenshot of a battle in BDSP. Then go to Adjust Video Effects and adjust the colors until all detections return green.

	Target HSV	Current HSV
Battle	353,178,194	354,166,184
Pokemon	111,154,201	111,144,197
Bag	51,186,203	51,172,199
Run	239,123,214	238,116,204

Video Effect Settings

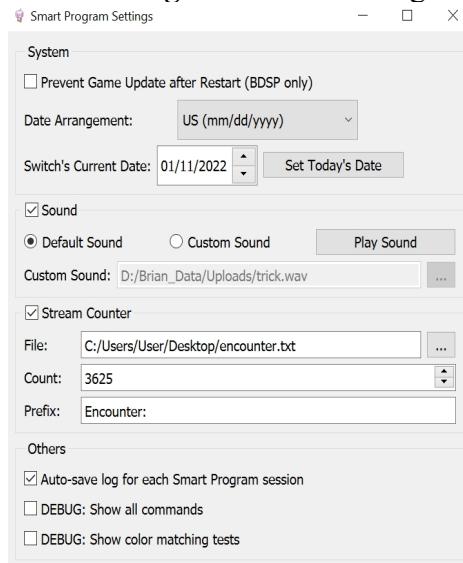
Do NOT adjust these settings unless you are instructed or have detection problem!!!

Hue:	<input type="range"/>	0.00
Saturation:	<input type="range"/>	0.91
Contrast:	<input type="range"/>	1.00
Reset to Default		

Stop Settings Reload SmartCommands.xml

1.5.6 General Settings

Press **Settings** under Smart Program section, it will bring up this window:



System Settings

Here you can set the date arrangement and current date to match the one on your Switch, this is important for programs like **Auto Day Skipper**, they will explicitly remind you to set the date before running the program. There is also an option to prevent game update if the Smart Program restarts the game, but this is only available for BDSP.

Sound Settings

This sets when Smart Program completes or fails to play a sound effect. You can also change it to use custom sound effects you want.

Stream Counter

This section is mainly for streams or if you want to keep track of how many encounters you had, you can disable this by unchecking the check box. Only a few programs make use of this like shiny hunt related programs, they will be specified in the instruction section of the program (section 3).

- **File:** if you want to have a counter on stream, you need to create a text file first, and press “...” to load the file, this will be used to output text for streaming software to read
- **Count:** the counter number, this is increased and controlled by the Smart Program itself, if you want to change the initial value, you must change this before starting the program
- **Prefix:** you can add a prefix before the counter number to output to text file

Logging

By default when you run any Smart Program it will automatically save a log file to the Log folder, it is recommended to leave this on in case error occurs and needed for

debugging. **Show all commands** will print out each individual button presses and **Show color matching tests** will debug color detection from the video output.

1.5.7 Before & While Running Smart Programs

If you have read all the sections above here, you are ready to use Smart Programs! Head to **section 3** and read the instructions carefully for each programs there. But there are a few things you should be aware of before and while running Smart Programs:

- You MUST make sure the Switch video output screen size is set to 100%, since this will cause image detection to misalign, you will NOT be able to start Smart Programs if this is not set properly. Go to Settings->TV Settings->Adjust Screen Size and set to 100%.
- Running Smart Programs require decent amount of CPU power, and some of them require a consistent video output to detect status correctly, opening new applications (especially Chrome) may cause video output delay to shift and cause error to programs, so open them before running programs
- Do NOT turn off/set to sleep mode for the Switch while the camera is on, this causes the video output to freeze until you turn it back on, you will not be able to close the application if it was freezing (unless force terminating). **You MUST go to Sleep Mode settings, and set Auto-Sleep (Connected to TV) to never, since you may be running programs overnight and it stops during that period, this prevents the Switch from turning off**

1.5.8 Making Custom Commands

At the bottom left of the Smart Program Manager, there is a command sender, here you can make your own commands, or test new commands to be used to make or help develop new programs.

Sending Basic Commands

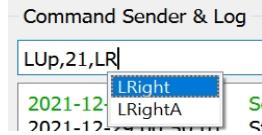
The basic command sequence is COMMAND, DURATION, COMMAND, DURATION, ..., where DURATION must be an integer number (**1 = 48.05ms**), and you can send up to 30 command-duration pair at a time. Here are the available commands:

- **Nothing**
- Basic Buttons: **A, B, X, Y, L, R, ZL, ZR**
- System Buttons: **Plus, Minus, Home, Capture**
- L-Stick: **LClick, LUp, LDown, LLeft, LRight, LUpLeft, LUpRight, LDownLeft, LDownRight**
- R-Stick: **RClick, RUp, RDown, RLeft, RRight**
- D-Pad: **DUp, DDown, DLeft, DRight**
- **Triggers** (press L+R together)
- **LUpA, LDownA, LRightA** (move L-stick and press A at the same time)
- **ASpam, BSpam** (more below)
- **Loop** (more below)

Say you want to move in a square for 1 second in each direction, you will want to send:

- **LUp,21,LRight,21,LDown,21,LLeft,21**

Duration is 21 is from $1000/48.05 = 20.8$, then round it to the nearest integer. While you start typing commands, it will give suggestions of what commands are available:



You will be able to see the timing of each command being executing in real time from both virtual controller and the log. After sending each command, you can press Up to go to the most recent command sequence, up to 10 sequences are saved.

The screenshot shows a software window titled "Command Sender & Log" with a text area labeled "Send commands here... (e.g. A,1,Nothing,1,DRight,1,Nothing,10,LUp,20,...)". Below this, a log of command execution is displayed:

```
2021-12-29 00:49:59 Serial connected
2021-12-29 00:50:01 Starting Camera...
2021-12-29 00:50:01 Camera on
2021-12-29 00:51:08 Command sent: [LUp,21,LRight,21,LDown,21,LLeft,21]
2021-12-29 00:51:08 Executing command: [LUp,21]
2021-12-29 00:51:09 Executing command: [LRight,21]
2021-12-29 00:51:10 Executing command: [LDown,21]
2021-12-29 00:51:12 Executing command: [LLeft,21]
2021-12-29 00:51:13 -----Finished-----
```

Note that if you want to press the same button more than once one after each other, you MUST put a “**Nothing,1**” in between.

***A**Spam and **B**Spam*

If you need to press A or B a lot, you can use **A**Spam and **B**Spam, if you have command:

- **A**Spam, 100

This is equivalent to “**A,1,Nothing,1**” and repeat 50 times.

Loop

Loop is a special command you can use to repeat a sequence of commands, and there are multiple ways you can use this:

- **Once-Off:** Take the **A**Spam example from above, you can also input “**A,1,Nothing,1,Loop,50**” and does the same thing
- **Loop-Forever:** Take the walk in square for 1s example, if you want this to loop forever, you can set the loop duration to 0 so you have “**LUp,21,LRight,21,LDown,21,LLeft,21,Loop,0**”, this will only stop when you press a mapped key on virtual controller or send new commands. Any commands after **Loop,0** will be ignored

You can also mix the two uses together, take the following command for example:

LUp,21,LRight,21,LDown,21,LLeft,21,Loop,1,A,1,Nothing,1,Loop,50,DDown,1,Nothing,1,Loop,0

The command string is annotated with three colored brackets: a red bracket under "Loop,1", a blue bracket under "Loop,50", and a green bracket under "Loop,0".

- **Red:** This has a “**Loop,1**” at the end, the reason this is here is to reset the loop position, the next loop command will start from here so blue section can work
- **Blue:** As mentioned, a loop command will either start from the beginning or

- from the last loop command, in this case is after “Loop,1”
- **Green:** Since loop duration is 0, it will loop forever, the last loop command was “Loop,50” so it will start from there

In conclusion, the final command will be walk in a square on each direction once, then press A 50 times and finally press dpad down forever.

Modifying Existing Commands

Now that you understand the structure of commands, if you want to modify commands that is currently used by Smart Programs, for example some programs are not working properly for your game’s language, you can find them in SourceCode -> Bots -> Others_SmartProgram -> SmartCommands.xml. You should also consider submitting an issue or pull request to github repository (refer to **section 1.7**).

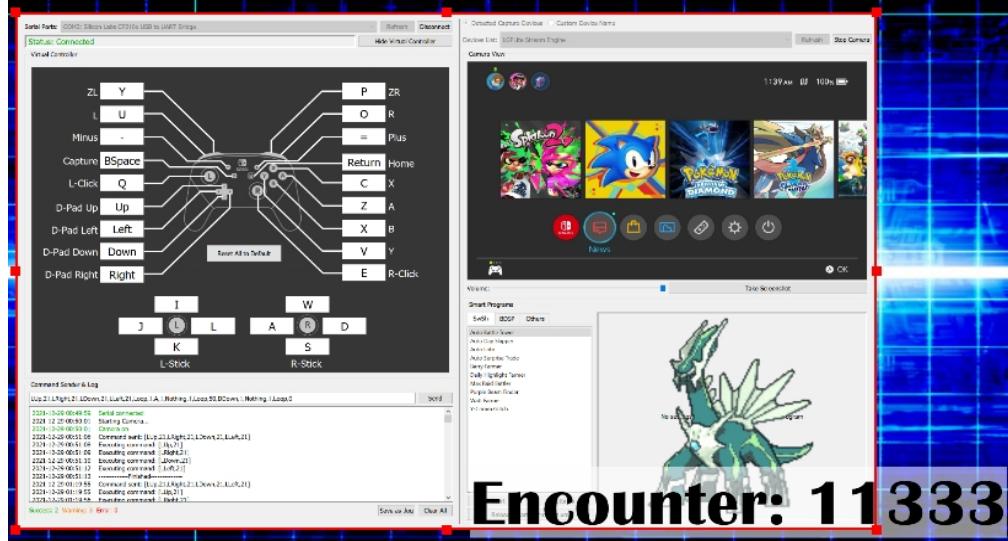
1.5.9 Streaming/Recording with Smart Program Manager

Since only one application can use a camera at a time, you cannot record the source from both Smart Program Manager and other programs like OBS, you must record Smart Program Manager itself and crop the video display if needed.

When opening OBS after you have started camera on Smart Program Manager, if you have the camera device setup beforehand, there will be a popup window saying it is occupied by AutoControllerHelper.exe, **this popup often appears behind OBS and you MUST press OK on it otherwise you will find yourself unable to close OBS!!!**



After pressing OK you can go ahead and setup Window Capture for Smart Program Manager, and also setup encounter number, again I will not go details on this.



1.6 ShinyPixelChecker Tutorial

After 5.0.0 Smart Program are introduces and you are strongly recommended to use it instead to take advantage of using a capture card for feedback.

Version 4.4.0 add this new program to help (mainly streamers) users to find shiny Pokemon! This program have two main functionalities:

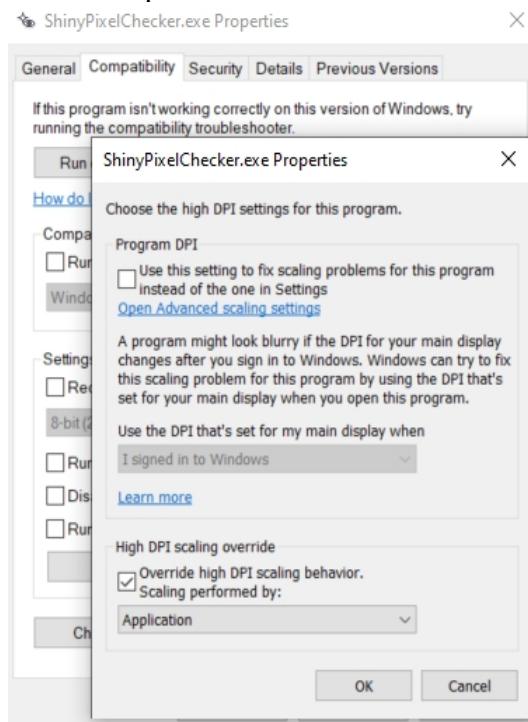
- Detect whether a Pokemon is shiny or not
- Increment counter in a text file that can be read from streaming softwares

You will need the following to be able to use this program:

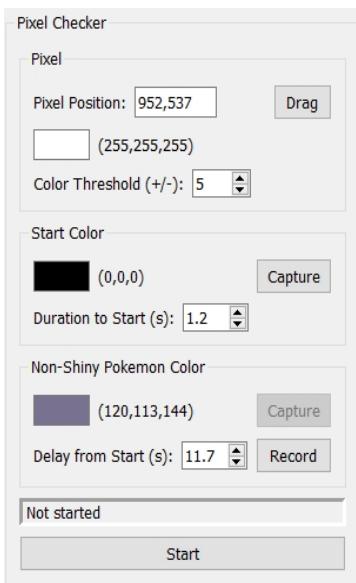
- A capture card (w/ non-Lite Switch) OR a decent webcam (for Lite/non-Lite)
- A streaming software (OBS etc.) OR programs that read video feed
- A PC

This program is mainly designed for checking shiny wild encounters programs (ShinyFiveRegi, ShinySwordTrio etc.), but you can also make it work with EggHatcher or even AutoFossil too!

You are recommend to set the DPI settings to Application since it may mess up if you have multiple screens:



1.6.1 Pixel Checker



The main part of this program have three sections:

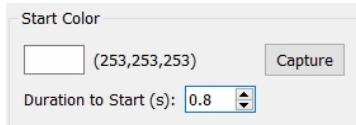
- **Pixel:** the pixel on your monitor the program constantly checks every 0.1s
- **Start Color:** the pixel color that will trigger a timer for “event” when it has been the same color for the start duration
- **Non-Shiny Pokemon Color:** the pixel color of the non-shiny Pokemon, checked after a delay when start color was finished detecting

1.6.2 How to Use

1. Before you start, you need to setup so that the streaming software has the input of your capture card or webcam, you can also use the capture card’s own recording software or webcam viewer to get video feed on your PC.
2. Start an encounter manually first, you want to look for an area of the Pokemon that doesn’t have drastic color differences and remember that spot
3. Start a 2nd battle, now you will need to press and hold “Drag” and drag the cursor to the position you just remembered. **Make sure no other program can obstruct this pixel when the program is running!**

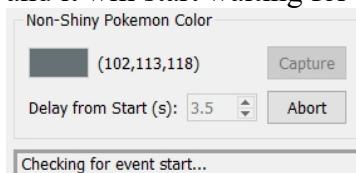


4. Start a 3rd battle, this time you want to press the “Capture” button at the Start Color section when the screen goes to white, the color is generally (253,253,253), so you can also set this manually by clicking the color box.

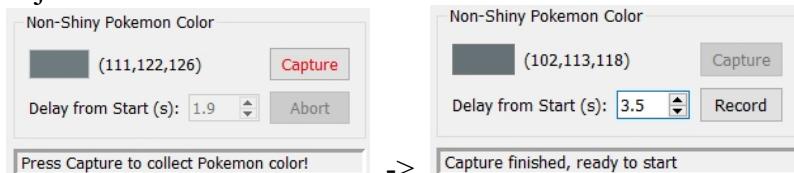


This is not limited to white screens, as long as the color stays on screen for a set amount of time and doesn't happen another event, it will work. For example, egg hatching will have 1.2s black screen before animation starts, no other black screen in it last longer than 1.2s.

5. Now you will need to set the “Duration to Start” time, you want to set this so that it last almost as long as the white/black screen will last, for ShinyFiveRegi it should be 0.8s, ShinySwordTrio is 0.2s and EggHatcher is about 1.2s. You can check this by recording a battle and check how long it lasted on screen.
6. Next you need to record the non-Shiny Pokemon color, press the “Record” button, and it will start waiting for the “event” to start, so go in for the 4th battle.



If the start duration is too long, it will never allow you to capture color, press the “Abort” button and adjust the duration. Or if you are using webcam, you will need to adjust the color threshold.



When the “event” starts, it will start counting the delay and wait for you to press “Capture”, now capture the color on the spot on the Pokemon at step 3, the program will remember how long it took for the “event” to start till when it should check the pixel color of the Pokemon.

7. Now you should be good to go, press the “Start” button, it will first look for the **Start Color**, if it is on screen for “duration” long, “event” will start, after the delay timer, it checks the pixel of the Pokemon and notifies you if it is a shiny (check Sounds section)



1.6.3 Troubleshooting

- If it is waiting for event to start and the duration is too long, it will never start detecting pokemon's color or let you capture it, reduce the duration time.
- If you are using webcam, you may need to increase the color threshold for all detections to work correctly, otherwise it may give you false positive shiny or event never starts.
- If the program detects a false positive shiny, you can change the pixel you want to check (which you will need to calibrate from the beginning) or adjust the color threshold by checking the difference of your result color compare to the non-shiny Pokemon color, if the difference is too large, you need to find a new pixel.



1.6.4 Sounds

This section gives you the option to play sounds when shiny and non-shiny is found, when shiny is found, you should unplug your board if your program is going to run from the shiny if you don't. You can also enable Meme mode for different sound effects.

1.6.5 Stream Counter

This section is mainly for streams or if you want to keep track of how many encounters you had, you can disable this by unchecking the check box.

- **File:** if you want to have a counter on stream, you need to create a text file first, and press “...” to load the file, this will be used to output text for streaming software to read
- **Count:** the encounter number, this increases every time the “event” starts and the program checks the Pokemon’s pixel color, you can also change this manually, this will also update the text file if specified
- **Prefix:** you can add a prefix before the encounter number to output to text file
- **69 Count Mode:** change the output number to 69+x, 169+x etc.

1.7 Contribution, Bug Report, Help Support

1.7.1 Bug Report

If you find programs not working properly (especially for non-English games), you can submit an issue tracker to the github repository. It is highly recommended include a video of the bug so it can be debugged much easier.

- Native Program: https://github.com/brianuuu/AutoController_swsh/issues
- Smart Program: <https://github.com/brianuuu/AutoControllerHelper/issues>

1.7.2 Creating New Programs

Alternatively, you can create your own program by submitting pull requests:

- Native Program: https://github.com/brianuuu/AutoController_swsh/pulls
- Smart Program: <https://github.com/brianuuu/AutoControllerHelper/pulls>

For Native Programs, programs by default will be treated as Sword/Shield program, for Brilliant Diamond & Shining Pearl program, you need to add “**BDSP_**” as a prefix, for other programs, add “**Others_**” prefix.

Once new Native Program is added, it won’t have UI support in AutoControllerHelper to modify configuration, usually I will add them myself, so no need for pull requests on AutoControllerHelper repository.

Adding new Smart Program is much complicated, I will not explain in detail here, but you will need Qt creator in order to edit the source code and add new UIs. But you can check the following commit to see the basic changes you will need to do:

<https://github.com/brianuuu/AutoControllerHelper/commit/538784f76cbde66842d253b3b17bb1c3f6dfd32a>

1.7.3 Discord Channel

If you have any question you can join this channel: <https://discord.gg/GWEurpGZNM>

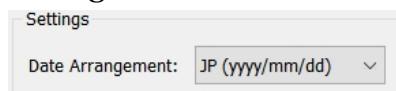
2. Native Program Instructions

2.1 Pokemon Sword/Shield

2.1.1 Auto3DaySkipper

This program rows 3 days forward to a random pokemon in a wishing piece den and repeats, this is useful if you are rolling for a specific pokemon (e.g. 5% 5* G-max).

Settings



- **Date Arrangement:** Match with your system's current settings, check it at "System Settings > Settings > Date and Time > Date and Time"
yyyy/mm/dd = JP, dd/mm/yyyy = EU, mm/dd/yyyy = US

Instructions

1. **v4.4.3:** Have at least 3 game icons on HOME screen, or download more from eshop!
2. Goto Options, set Text Speed to Fast
3. Stand in front of the wishing piece den (**v4.5.0:** You do not need to ride on a bike anymore)
4. Save the game
5. Unsync system clock, go back to the game
6. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

1. Close game, sync and unsync clock and reset date to current date, then start game
2. Skip 3 frames (years) forward using invite glitch
3. At the 4th day, the program will spam Down button for 10 seconds at the raid summary for user to check if the pokemon is the one they want
4. If yes, unplug the board, if not, leave it alone and it will start from 1. again

Config.h Detail

- **m_JP_EU_US:** 0 = JP (yyyy/mm/dd), 1 = EU (dd/mm/yyyy), 2 = US (mm/dd/yyyy)

2.1.2 AutoBattleTower

This program automatically does battle tower in Wyndon and grinds BP. This is very useful if you need BP to buy mints and ability capsules. Credit goes to sug@r for the button sequence (check credits for reference).

Settings

N/A

Instructions

1. Goto Options, set Text Speed to Fast, set Battle Effects to Off
2. Goto VS -> Battle Stadium -> Rental Teams (You will need **Nintendo Switch Online** for this, if not you will need to build the team yourself, you can refer to Appendix 2 to check how to maximize the power of the Pokemon)
3. Rent the team with ID “0000-0006-15Y4-3R”, the team includes:

Zacian @ Rusted Sword

Ability: Intrepid Sword
EVs: 252 Atk / 4 Def / 252 Spe
Adamant Nature
- Iron Head (Max PP Up)

Eternatus @ Choice Specs

Ability: Pressure
EVs: 4 Def / 252 SpA / 252 Spe
Modest Nature
- Dynamax Cannon (Max PP Up)

Dracovish @ Choice Scarf

Ability: Water Absorb
EVs: 252 Atk / 4 Def / 252 Spe
Adamant Nature
- Fishious Rend (Max PP Up)

4. Join Single Battle on Battle Tower, choose the team above and Zacian in the front, wait until you can press Fight on the first battle
5. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

It loops Battle Tower forever, it is able to switch Pokemon. It is also able to re-enter Battle Tower when losing, pausing midway or after winning.

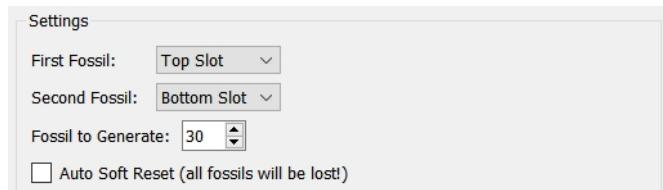
Config.h Detail

N/A

2.1.3 AutoFossil

This program automatically talks to Cara Liss and generate fossils, this is perfect if you are hunting for shiny fossils, as they cannot be bred and not available in raids.

Settings



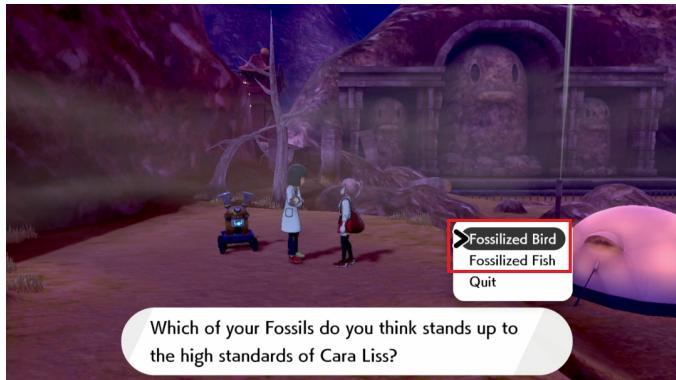
- **First Fossil:** The 1st fossil selection when you talk to Cara Liss (Top/Bottom)
- **Second Fossil:** The 2nd fossil selection when you talk to Cara Liss (Top/Bottom)
- **Fossil to Generate:** how many fossil you want to generate before restarting
- **Auto Soft Reset:** Automatically restart the game when you get enough fossils

Instructions

1. Goto Options, set Text Speed to Fast, set Give Nicknames to Don't give, set Send to Box to Automatic
2. v4.4.2: Set Sound Effects volume to 0, you will need Hi-tech Earbuds from a person in Motostoke



3. Fly to route 6 and save in front of Cara Liss
4. Create the fossil at least once to register it in the Pokedex
5. Talk to Cara Liss, check whether your fossil is on the top slot or the bottom slot for both fossils



- Check whether you have enough number for both fossils in your inventory, if you want to get more, use TurboA program on digging duos



- Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

The program will keep talking to Cara Liss until you get enough number of fossils, if you didn't check “**Auto Soft Reset**”, the program will stop at the home menu signaling it is finished. Otherwise it will soft-reset immediately, you will have to pay attention every time you get a fossil and check whether it is a shiny, generally this is not recommended.

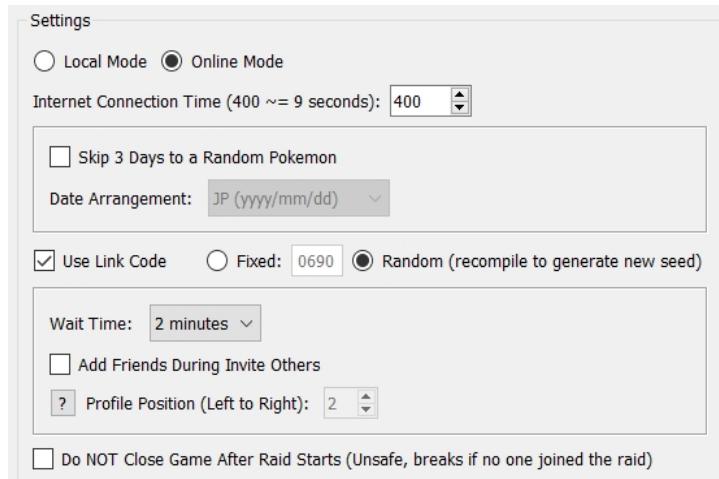
Config.h Detail

- **m_firstFossilTopSlot:** true = top slot, false = bottom slot
- **m_secondFossilTopSlot:** true = top slot, false = bottom slot
- **m_timesBeforeSR:** Number of fossils to generate
- **m_autoSoftReset:** true = SR when enough fossile, false = otherwise

2.1.4 AutoHost

This program automatically host raid, with a lot of different settings user can set, including skipping to the 4th day for random pokemon, customize link code, add friend during waiting etc.

Settings



- **Local/Online Mode:** Set between hosting locally or online
- **Internet Connection Time:** Change this base on the time it takes for your game to connect to the internet, $400 \approx 9$ seconds, you are advice to use wired connection to have faster and stable connection
- **Skip 3 Days to a Random Pokemon:** Checking this will roll 3 days to a random pokemon before hosting a raid
- **Date Arrangement:** Match with your system's current settings, check it at "System Settings > Settings > Date and Time > Date and Time" yyyy/mm/dd = JP, dd/mm/yyyy = EU, mm/dd/yyyy = US
- **Use Link Code:** Checking this will set a link code before starting a raid
 - Fixed:** Use the same link code for all raids
 - Random:** Generate a pseudo random link code for each raid, the sequence will be the same every time you unplug and replug the board, to change to a different random sequence, recompile the program
- **Wait Time:** 2 minutes (until 1:00 mark) or 1 minute (until 2:00 mark), the client must be ready before the timer, otherwise the raid will fail or breaks the program
- **Add Friend During Invite Others:** Checking this will add friends while waiting for client to join the raid
- **Profile Position (Left to Right):** Only used when you check above, at home menu, the profiles on the top from left to right, pick the one you which to add friend on
- **Do NOT Close Game After Raid Starts:** Checking this will keep the same raid without restarting the game, this is **unsafe** since if clients are not ready before the timer hits or no one joins the raid, the program will softlock inside a raid, so user should monitor the program. This is not available if "**Skip 3 Days to a Random Pokemon**" is checked, if you which to do that, please use Auto3DaySkipper before using this program.

Instructions

1. Goto Options, set Text Speed to Fast
2. Stand in front of the wishing piece den and save
3. Disconnect from the internet in y-comm
4. If “**Skip 3 Days to a Random Pokemon**” is checked, you must unsync system clock.
v4.4.3: Have at least 3 game icons on HOME screen, or download more from eshop!
5. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

1. If “**Skip 3 Days to a Random Pokemon**” is not checked, skip to next step, otherwise it does the same thing as Auto3DaySkipper
2. Connect to internet at y-comm
3. Talk to the den, if “**Use Link Code**” is checked, it will set your fixed or random link code then start the raid
4. While waiting for clients to join, if “**Add Friend During Invite Others**” is checked, it will goto the profile number you picked and spam A at Add Friends
5. Start raid after it waited for “**Wait Time**”, and wait until you can see the pokemon
6. If “**Do NOT Close Game After Raid Starts**” is checked, it will goto the first profile and search for local friend, this will DC from the raid but keeping the same raid, then restart from 2., otherwise it will close the game and start from 1. Again (note that restarting game will result client’s side freezing for 10-15 seconds)

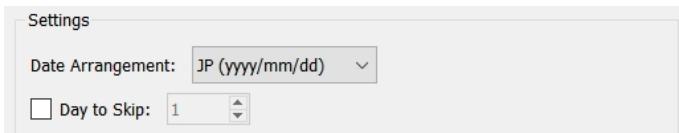
Config.h Detail

- **m_localMode:** false = host locally, true = host online
- **m_internetTime:** Time to connect to internet (400 ~ 9 seconds)
- **m_JP_EU_US:** 0 = JP (yyyy/mm/dd), 1 = EU (dd/mm/yyyy), 2 = US (mm/dd/yyyy)
- **m_skip3Days:** Skip 3 days before starting a raid
- **m_unsafeDC:** true = use invite local friend to DC from raid, false = restart game
- **m_useLinkCode:** true = set link code for raid, false = otherwise
- **m_useRandomCode:** true = Generate pseudo random link code base on **m_seed**, **m_useLinkCode** must be set to true to use this
- **m_seed:** 0 to 255, a seed to generate different pseudo random link code sequence
- **m_linkCode[]:** set your fixed link code here, 1234 = {1,2,3,4}; etc., **m_useLinkCode** must be set to true and **m_useRandomCode** set to false to use this
- **m_waitTime:** 0 = wait 1 minute until 2:00 mark, 1 = wait 2 minutes until 1:00 mark
- **m_addFriends:** true = add friends while waiting for clients to join raid
- **m_profile:** 1 to 10, the profiles on the top at home screen from left to right,

2.1.5 AutoLoto

This program grinds loto for rewards like PP Up, PP Max and Master Balls! Before you use this program you should have at least a few surprise trade boxes so they all have different trainer ID to maximize your chance of getting better rewards. If you want to do surprise trade automatically, use EggCollector and EggHatcher to hatch boxes of Magikarps and use BoxSurpriseTrade to trade them all.

Settings



- **Date Arrangement:** Match with your system's current settings, check it at "System Settings > Settings > Date and Time > Date and Time" yyyy/mm/dd = JP, dd/mm/yyyy = EU, mm/dd/yyyy = US ***You are recommended to use **Japanese** date arrangement since it skips day the fastest, to do so, goto System Settings > System > Language, change it to **日本語** (remember where to change this if you can't read Japanese and wish to change the language back later)
- **Day to Skip:** Optional, the program will stop after skipping specified days, so you can grind loto and also skipping days for your shiny den at the same time

Instructions

1. **v4.4.3:** Have at least 3 game icons on HOME screen, or download more from eshop!
2. Goto Options, set Text Speed to Fast
3. Stand in front of a Rotom PC
4. Unsync system clock, go back to the game
5. Activate y-comm glitch
6. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

1. Sync and Unsync clock and reset date to current date
2. Skip 1 frame (year) forward
3. Get reward from loto, repeat 1., if optional day to skip is set, the program will stop at the home menu signaling it is finished

Config.h Detail

- **m_JP_EU_US:** 0 = JP (yyyy/mm/dd), 1 = EU (dd/mm/yyyy), 2 = US (mm/dd/yyyy)
- **m_dayToSkip:** 0 = infinite, otherwise the number of days before the program stops

2.1.6 AutoTournament

This program automatically does tournament in Wyndon stadium and grinds items from Ball Guy (he's awful). This is useful if you need rare items like Flame Orb, Toxic Orb or Kurt Balls that you can only get via tournament. Credit goes to 甘木まさ@maginngo for the button sequence (check credits for reference).

WARNING: This program DOES NOT work anymore if you have triggered [Galarian Star Tournament](#) from Crown Tundra DLC!!!

Settings

N/A

Instructions

1. Goto Options, set Text Speed to Fast, set Battle Effects to Off
2. Have only Zacian in your team with the following set (please refer to Appendix 2 to check how to maximize the power of the Pokemon):

Zacian (lv100) @ Rusted Sword

Ability: Intrepid Sword

EVs: 252 Atk, Optional: 4 Def / 252 Spe

Adamant Nature

- Iron Head (Max PP Up)

3. If you don't have Zacian then you can try to use one of the Pokemon below, but all of them are significantly worse than Zacian and each one can have opponent that is impossible to beat (sorry Shield players, good luck):

Galarian Darmanitan (lv100) @ Choice Band

Ability: Gorilla Tactics

EVs: 252 Atk / >32 Spe / the rest on Def

Adamant Nature

- Ice Punch/Icicle Crash (Max PP Up)

Trainers Can't Beat:

- Hop (Zacian)
- Nessa (Drednaw)
- Kabu (Centiskorch)

*Icicle Crash can beat everything (if the move hits with 90% accuracy)

Tyranitar (lv100) @ Choice Band

Ability: Sand Stream

EVs: 252 Atk / >220 Spe / the rest on Def

Jolly Nature

- Crunch (Max PP Up)

Trainers Can't Beat:

- Hop (Zacian)

- Marnie (Scruffy & Grimmsnarl)

Crawdaunt (lv100) @ Choice Band

Ability: Adaptability (Hidden)

EVs: 252 Atk / 252 Spe / 4 Def

Adamant Nature

- Crunch (Max PP Up)

Trainers Can't Beat:

- Hop (Zacian)
- Marnie (Grimmsnarl) *within range

Sirfetch'd (lv100) @ Choice Band

Ability: Scrappy (Hidden)

EVs: 252 Atk / >180 Spe / the rest on any

Jolly Nature

- Close Combat (Max PP Up)

Trainers Can't Beat:

- Allister (Runerigus) *ability got replaced
- Bede (Hatterene)
- Leon (Charizard)

Dracovish (lv100) @ Choice Band

Ability: Strong Jaw

EVs: 252 Atk / 252 Spe / 4 Def

Adamant Nature

- Fishious Rend (Max PP Up)

Trainers Can't Beat:

- Marnie (Toxicroak) *Dry Skin
- Leon (Seismitoad) *Water Absorb, only if you picked Grotle as your starter
- Gym Challenger Corvin (Lanturn) *Water Absorb
- Gym Challenger Terry (Dracovish) *Water Absorb

4. Stand in front of Wyndon Stadium receptionist

5. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

It loops Wyndon Stadium tournament forever, collect reward from Ball Guy when it is over and rejoin the tournament, it is also able to rejoin if you lose.

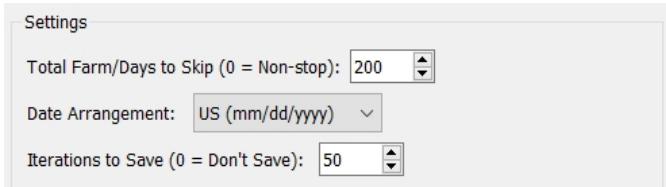
Config.h Detail

N/A

2.1.7 BerryFarmer

This program farms the same berry tree forever, you can use this to farm leftovers, Sitrus berry for competitive, or berries that increase happiness of your pokemon etc.!

Settings



- **Total Farm/Days to Skip:** Set the no. of cycles to run, you can use this to skip frames of a day while farming
- **Date Arrangement:** Match with your system's current settings, check it at "System Settings > Settings > Date and Time > Date and Time" yyyy/mm/dd = JP, dd/mm/yyyy = EU, mm/dd/yyyy = US
- **Iterations to Save:** Save every that amount of loops has been run, since there's a small chance the game will crash if you are using this in Wild Area

Instructions

1. **v4.4.3:** Have at least 3 game icons on HOME screen, or download more from eshop!
2. Goto Options, set Text Speed to Fast
3. Stand in front of the berry tree you want to farm (check Serebii.net for what berries are apricorn it can drop)
4. Stay away from any wild pokemon that can run into you (Greedent/Sneasel etc.)
5. Unsync system clock, go back to the game
6. Activate y-comm glitch
7. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

1. Sync and Unsync clock and reset date to current date
2. Skip 1 frame (year) forward
3. Talk and shake the berry tree only once
4. If number of iteration matches "**Iterations to Save**" the game will be saved, if day to skip is not 0, the program will stop at the home menu signaling it is finished, otherwise it will repeat from 1.

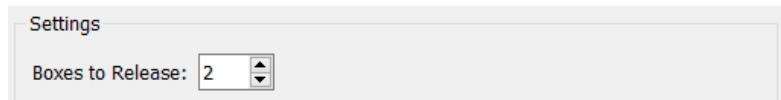
Config.h Detail

- **m_farmTotal:** 0 = infinite, max = 65535, the number of cycles/days to skip
- **m_JP_EU_US:** 0 = JP (yyyy/mm/dd), 1 = EU (dd/mm/yyyy), 2 = US (mm/dd/yyyy)
- **m_saveAt:** number of iterations to save, 0 = never saves (not recommended)

2.1.8 BoxRelease

This program releases all pokemon in one or multiple boxes, if you have a lot of breed rejects you can use this to get rid of them very fast.

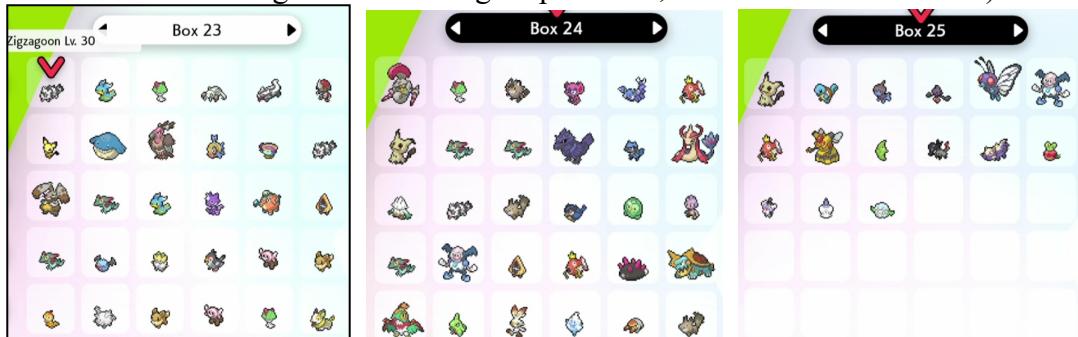
Settings



- **Boxes to Release:** number of boxes of pokemon you wish to release

Instructions

1. Save the game first in case anything goes wrong
2. Goto Options, set Text Speed to Fast
3. Make sure all release boxes are adjacent to each other, they should NOT have any eggs or empty spaces (the last rightmost box is allowed to have empty spaces, but the pokemon must be arranged from left to right, top to bottom, the program will also start to do weird things after releasing all pokemon, so it is best to monitor it)



4. Set the cursor to Select mode (red) and move it to the first leftmost box's top left
5. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

The program releases pokemon in a box from left to right, top to bottom, when it finished releasing the boxes user has set, the program will stop at the home menu signaling it is finished.

Config.h Detail

- **m_boxCount:** number of boxes of pokemon you wish to release

2.1.9 BoxSurpriseTrade

This program automatically do surprise trade with the Pokemon in your PC, this is useful to get a lot of pokemon with different trainer ID to farm Master Balls from loto, you can use AutoLoto for that.

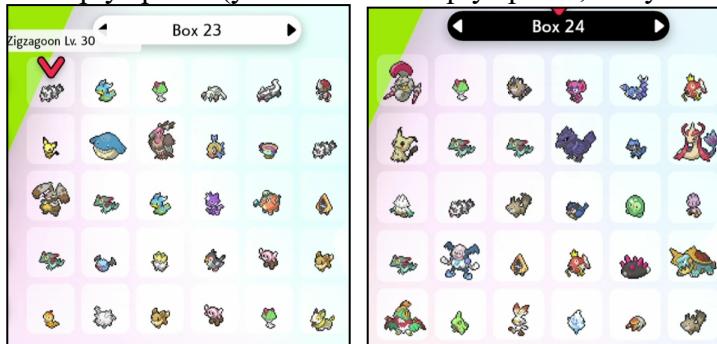
Settings



- **Boxes to Trade:** number of boxes to do surprise trade
- **Completed PokeDex:** Check this if you have completed your pokedex, this saves a few seconds per trade

Instructions

1. Goto Options, set Text Speed to Fast
2. Fly to any places that is not Wild Area, this will reduce lag
3. Do not stand in front of any NPCs to prevent talking to them
4. Make sure all trade boxes are adjacent to each other, they should NOT have any eggs or empty spaces (you can have empty spaces, but you will be just wasting time)



5. Goto PC, scroll the box view to the first leftmost box (Box 23 on the above example) and exit, this will make sure when the program starts, it will start on that box
6. Connect to the internet in y-comm
7. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

The program do surprise trade of your selected boxes from left to right, top to bottom. It will wait 30 seconds then finish the trade. There are cases where the **next trade will fail**:

- Unable to find current trade in 30 seconds
- Current trade contains a trade evolution (Machoke, Haunter etc.)
- User has checked “**Completed PokeDex**” in settings but receives a new dex entry

This does not break the program, only skips the next trade. However, if the current trade is the last pokemon in a box, it will not be able to goto the next box and continue trading with the same box, to prevent that, the last trade has a wait time of 1 minute, but trade evolution will still break this, it is recommended to monitor near the end of each box.

When all the boxes have finished trading, the program will stop at the home menu signaling it is finished.

Config.h Detail

- **m_boxesToTrade:** number of boxes to do surprise trade
- **m_completeDex:** true = skip a few seconds after every trade, false = extra A button presses after each trade

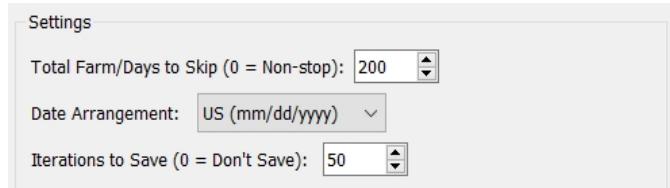
2.1.10 DailyHighlightFarmer

This program farms “today’s highlight” from Watt Trader at Snowslide Slope, you can use this to grind for rare items like Dream Ball or Max Mushroom! This program make use of the fast button presses for skip frame much faster!

Check the list of items here (maybe incomplete):

<https://game8.co/games/pokemon-sword-shield/archives/305741>

Settings



- **Total Farm/Days to Skip:** Set the no. of cycles to run, you can use this to skip frames of a day while farming
- **Date Arrangement:** Match with your system’s current settings, check it at “System Settings > Settings > Date and Time > Date and Time”
yyyy/mm/dd = JP, dd/mm/yyyy = EU, mm/dd/yyyy = US
- **Iterations to Save:** Save every that amount of loops has been run, since there’s a small chance the game will crash if you are using this in Wild Area

Instructions

1. Have a bunch of watts before using this, you can grind them using TurboA on Digging Pa or WattFarmer
2. Average watt spent is about 4000W, set the total farm below your budget, the program should not break even if you are broke, but this is not tested
3. **v4.4.3:** Have at least 3 game icons on HOME screen, or download more from eshop!
4. Goto Options, set Text Speed to Fast
5. Stand in front the Watt Trader at Snowslide Slope



6. Unsync system clock, go back to the game
7. Activate y-comm glitch
8. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

1. Sync and Unsync clock and reset date to current date
2. Skip 1 frame (year) forward
3. Buy today's item from Watt Trader, if the item bought is the first time you ever got it, it may break the next cycle, but it will recover on the next next cycle.
5. If number of iteration matches "**Iterations to Save**" the game will be saved, if day to skip is not 0, the program will stop at the home menu signaling it is finished, otherwise it will repeat from 1.

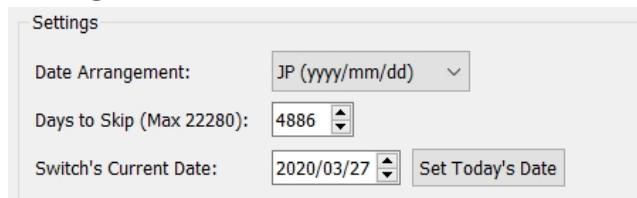
Config.h Detail

- **m_farmTotal:** 0 = infinite, max = 65535, the number of cycles/days to skip
- **m_JP_EU_US:** 0 = JP (yyyy/mm/dd), 1 = EU (dd/mm/yyyy), 2 = US (mm/dd/yyyy)
- **m_saveAt:** number of iterations to save, 0 = never saves (not recommended)

2.1.11 DaySkipper

This program advances days automatically. This is mainly used to shiny hunting to skip thousands of days without doing it manually and breaks your finger. There are two version of this program, DaySkipper and DaySkipper_Unlimited, if you wish to know the exact date the program will end at, use this, but this has a limit of skipping 22280 days.

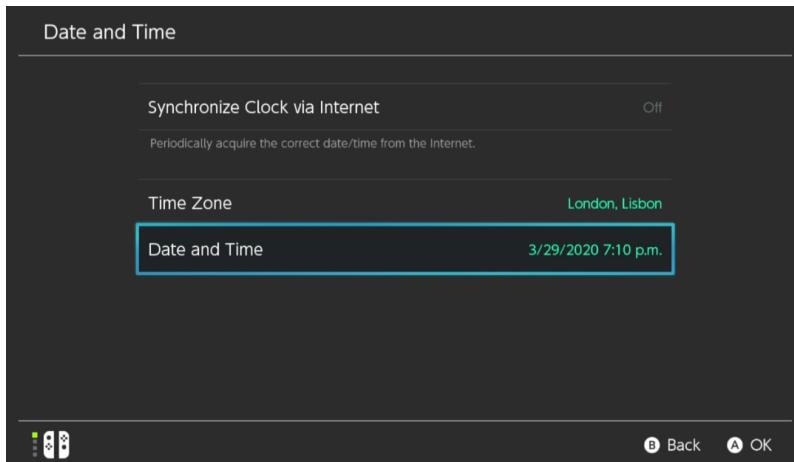
Settings



- **Date Arrangement:** Match with your system's current settings, check it at “System Settings > Settings > Date and Time > Date and Time”
yyyy/mm/dd = JP, dd/mm/yyyy = EU, mm/dd/yyyy = US
***You are recommended to use **Japanese** date arrangement since it skips day the fastest, to do so, goto System Settings > System > Language, change it to **日本語** (remember where to change this if you can't read Japanese and wish to change the language back later)
- **Days to Skip:** number of days to skip, maximum is 22280, due to Switch's max date is 31st December 2060.
- **Switch's Current Date:** Match this with your console's date, you will have to change the date if the number of skips exceed the maximum date

Instructions

1. Unsync system clock, make sure the time is not between daylight saving (1am - 3am), if you are using Japanese date arrangement, you don't have to worry about this
2. Go back to the game and activate y-comm glitch
3. Goto Pokemon Center to prevent game from crashing
4. Hover cursor to Date and Time



5. Connect Arduino/Teensy to your Switch (there's no need to unsync current controller)

What does the Program do?

The program will advance date one by one, it is able to tell when to skip day/month/year and skip leap years correctly. When the program reaches the end date (which should match the end date in Information in the helper tool), it will go back to the game signaling it is finished.

Config.h Detail

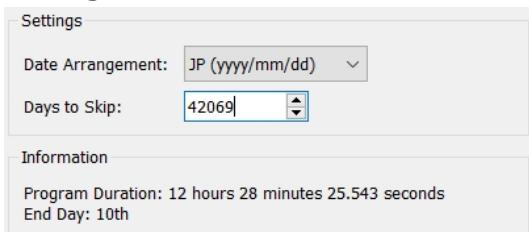
- **m_JP_EU_US:** 0 = JP (yyyy/mm/dd), 1 = EU (dd/mm/yyyy), 2 = US (mm/dd/yyyy)
- **m_day:** Console's current day (1 - 31)
- **m_month:** Console's current month (1 - 12)
- **m_year:** Console's current year (2000 - 2060)
- **m_dayToSkip:** days to advance

If you are doing this manually and wish to know the end date, use the following link to check: <https://www.timeanddate.com/date/dateadd.html>

2.1.12 DaySkipper_Unlimited

This program advances days automatically. Unlike DaySkipper, this has a limit of **2-billion** skips, this is way more than enough for doing long skips for rare shinies. The only drawback of this is you will not be able to know the end date, but the program will tell to the estimate duration of the program and the end day (1-31).

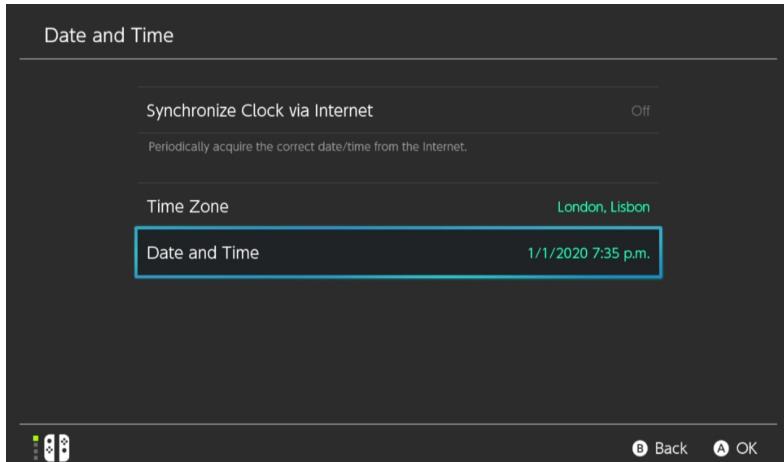
Settings



- **Date Arrangement:** Match with your system's current settings, check it at "System Settings > Settings > Date and Time > Date and Time" yyyy/mm/dd = JP, dd/mm/yyyy = EU, mm/dd/yyyy = US
***You are recommended to use **Japanese** date arrangement since it skips day the fastest, to do so, goto System Settings > System > Language, change it to **日本語** (remember where to change this if you can't read Japanese and wish to change the language back later)
- **Date to Skip:** Limit is 2147483647 (real limit is 4294967295, but 2 billion skips already takes 69 years to skip and you are probably dead lol)

Instructions

1. Unsync system clock, set the current date the 1st of any month with 31 days (January, March, May etc.)
2. Go back to the game and activate y-comm glitch
3. Goto Pokemon Center to prevent game from crashing
4. Hover cursor to Date and Time



5. Connect Arduino/Teensy to your Switch (there's no need to unsync current controller)

What does the Program do?

The program will advances day one by one, it will ONLY advances day and this is normal, when the day changes from 31 to 1, no skip is registered but the program knows that and will continue skipping. When the program finishes (the end day should match Information in the helper tool), it will go back to the game signaling it is finished.

Config.h Detail

- **m_JP_EU_US:** 0 = JP (yyyy/mm/dd), 1 = EU (dd/mm/yyyy), 2 = US (mm/dd/yyyy)
- **m_dayToSkip:** days to advance (1 - 4294967295)

2.1.13 EggCollector

This is Part 1 of 2 of shiny hunting via hatching eggs. This program automatically collect egg from Route 5 nursery. This also make use of Rotom Bike's turbo boost, increasing the chance of getting an egg, making it much more efficient than other programs.

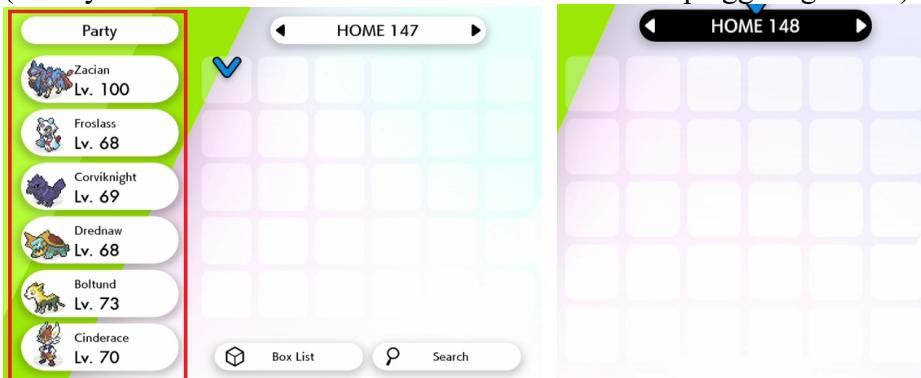
Settings



- **Target No. of Eggs:** number of iterations (if you follow all the instructions below, you should be getting about 80% number of eggs), you can set 0 to do this indefinitely, but running out of box space is untested, use at your own risk

Instructions

1. Goto Options, set Text Speed to Fast, set Send to Boxes to Automatic
2. You must have a full party without any eggs, and have plenty of space in your PC (ideally the boxes should be next to each other to keep eggs organized)



3. Scroll to the first leftmost box and exit
4. Have a full upgraded Rotom Bike (use WattFarmer if you don't have enough watts, then talk to any watt traders to upgrade your bike)
5. Goto Route 5 nursery and charge up **Rotom Bike turbo boost**
6. Cycle from the left side of the nursery worker, and towards her until you get stuck



7. (Optional) Defeat GAME FREAK's Morimoto to get Oval Charm, this can increase the chance of getting an egg
8. (Optional) The two pokémon in nursery have different trainer ID (e.g. someone else's Ditto + your pokémon), this will also increase the chance of getting eggs

9. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

1. Using turbo boost, cycle towards the right
2. Do a loop and cycle back to the left side of the nursery worker
3. Talk to nursery worker and get egg, there's a chance that you won't get an egg, but that's normal
4. Repeat from 1. until it reaches the amount user specified in settings, the program will stop at the home menu signaling it is finished.

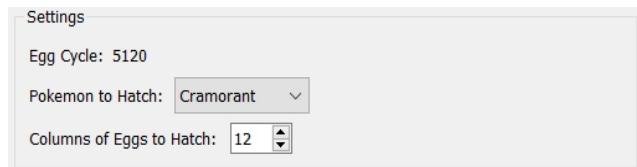
Config.h Detail

- **m_maxCycle:** number of iterations, 0 = infinite

2.1.14 EggHatcher

This is Part 2 of 2 of shiny hunting via hatching eggs. This program hatches columns of eggs in your PC automatically next to Route 5 nursery. This also make use of Rotom Bike's turbo boost, making it much more efficient than other programs.

Settings



- **Pokemon to Hatch:** a dropdown contains all pokemon, pick the one you are hatching, this will update the Egg Cycle number above
- **Columns of Eggs to Hatch:** columns of eggs in your box to be hatched, read more in the instructions

Instructions

1. Goto Options, set Text Speed to Fast, set Give Nicknames to Don't give
2. Have only ONE pokemon with Flame Body ability in your party (Litwick, Carkol, Centiskorch etc.)

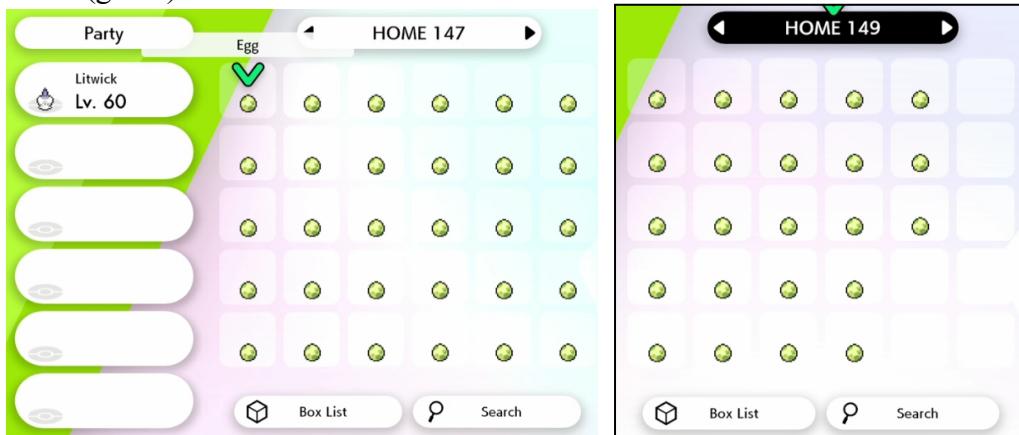


3. Have the hatching pokemon already registered in the pokedex (especially Munchlax, Budew, other baby pokemon etc.)
4. Have a full upgraded Rotom Bike (use WattFarmer if you don't have enough watts, then talk to any watt traders to upgrade your bike)
5. Goto Route 5 nursery and charge up **Rotom Bike turbo boost**
6. From outside nursery, cycle south west until you hit the first NPC on the bridge (the girl that talks about Team Yell goons)



7. Check your boxes, all columns of eggs must be adjacent to each other
8. Each column must have 5 eggs, with the exception of the last rightmost column (last column without 5 eggs will break the program, but it is the end so it doesn't matter)
9. All Eggs must have the same egg cycle at least if they are not the same pokemon
10. Move the cursor to the first leftmost column of eggs and change cursor to Multiselect

mode (green)



11. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

1. Pick up 5 eggs from a column in the box
2. Using turbo boost, cycle towards the left
3. Do a big loop and cycle back to the left side of the NPC
4. Repeat number of big loops base on egg cycle group
5. Do small loops without using turbo boost (number varies base on egg cycle group)
6. Hatch 5 eggs
7. Cycle down then right back the the left side of the NPC
8. Put the hatched pokemon back to box and pick up the next column, repeat from 2.
9. When all columns of eggs are hatched, the program will stop at the home menu signaling it is finished.

Config.h Detail

- **m_eggStepGroup:** 0 = 1280 steps, 1 = 2560 steps, 2 = 3840 steps, 3 = 5120 step, 4 = 6400 steps, 5 = 7680 steps, 6 = 8960 steps, 7 = 10240 steps
Check pokémon egg cycle here:
https://bulbapedia.bulbagarden.net/wiki/List_of_Pok%C3%A9mon_by_base_Egg_cycles
- **m_columnsOfEggs:** columns of eggs in your box to be hatched

2.1.15 FriendDeleteAdd

This program deletes friends from your friend list and optionally add accept friend request afterwards. Note that this will also delete **Best Friends**, because Switch does not have any sorting method for friend list, so use this at your own risk.

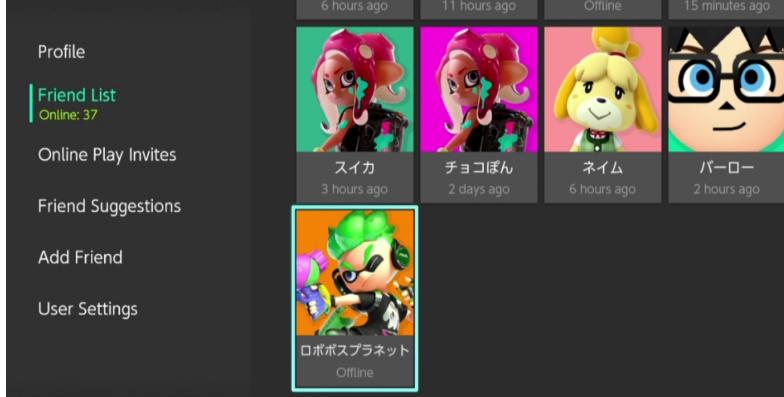
Settings



- **Friends to Delete:** number of friends to delete
- **Add Friends after Delete:** what it says

Instructions

1. Hover cursor on the last friend, if cursor is in the middle, it will delete friends on the right and below the current friend



2. Connect Arduino/Teensy to your Switch (there's no need to unsync current controller)

What does the Program do?

The program keeps deleting the last friend in the list until the number user specified in the settings, you should have stable internet when doing this, otherwise deleting may take too long causing one deletion will be missed. After deleting friends, if “**Add Friends after Delete**” is checked, it will goto Received Friend Requests and spam A forever.

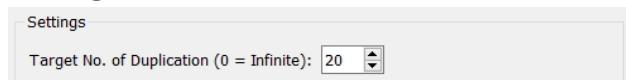
Config.h Detail

- **m_deleteCount:** number of friends to delete
- **m_addFriend:** true = add friend after deleting, false = don't do that

2.1.16 GodEggDuplication

This program automatically duplicate first pokemon in your party by collecting god egg from Route 5 nursery, I will not provide details on how to get the god egg, this require joining a hacked raid, duplicating Pokemon also risked of getting banned, so do this at your own risk!

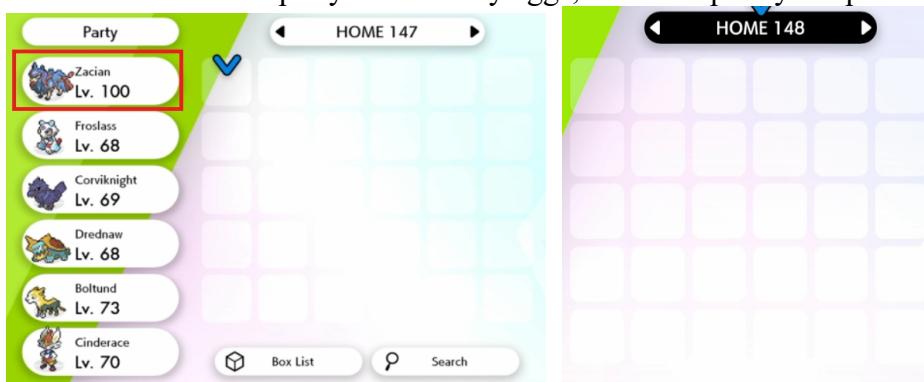
Settings



- **Target No. of Duplication:** number of iterations (if you follow all the instructions below, you should be getting about 80% number of eggs), you can set 0 to do this indefinitely, but running out of box space is untested, use at your own risk

Instructions

1. Goto Options, set Text Speed to Fast, set Send to Boxes to Manual
2. You must have a full party without any eggs, and have plenty of space in your PC



3. The first Pokemon in your team will be duplicated
4. Have a full upgraded Rotom Bike (use WattFarmer if you don't have enough watts, then talk to any watt traders to upgrade your bike)
5. Goto Route 5 nursery, deposite God egg and a Ditto, then charge up **Rotom Bike turbo boost**
6. Cycle from the left side of the nursery worker, and towards her until you get stuck



7. (Optional) Defeat GAME FREAK's Morimoto to get Oval Charm, this can increase the chance of getting an egg
8. (Optional) The two pokemon in nursery have different trainer ID (e.g. someone else's Ditto + God egg), this will also increase the chance of getting eggs

9. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

1. Using turbo boost, cycle towards the right
2. Do a loop and cycle back to the left side of the nursery worker
3. Talk to nursery worker and get egg, this will replace the first slot of your party duplicating that pokemon, there's a chance that you won't get an egg, but that's normal
4. Repeat from 1. until it reaches the amount user specified in settings, the program will stop at the home menu signaling it is finished.

Config.h Detail

- **m_maxCycle:** number of iterations, 0 = infinite

2.1.17 PurpleBeamFinder

This program helps you find a purple (rare) beam on a wishing piece den. Original program by Pleebz, modified by brianuuu.

Settings

N/A

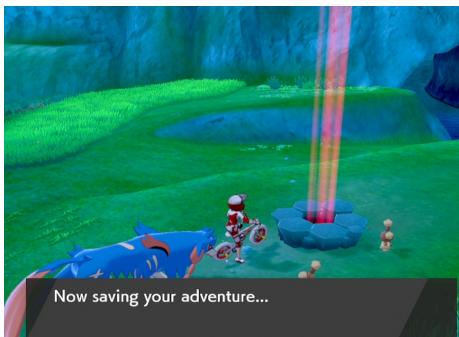
Instructions

1. Set text speed to FAST (not slow)
2. You must have at least one wishing piece in your inventory
3. Ride on a bike, stand in front of an empty den, collect watts if not already, then save the game
4. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

The program first ring the bike bell to notify user to pay attention to the game, then it will put a wishing piece in the den, if you DON'T see any red streak coming out from the den, that means you got a purple beam, now simply unplug the board. If it has red streaks, leave the board and it will restart the game and start the process again.

Red Beam:



Purple Beam: (Before and after HOME menu)



Config.h Detail

N/A

2.1.18 ShinyFiveRegi

This program automatically loops encounter with Regirock, Regice, Registeel, Regieleki or Regidrago and lights up the tile to re-encounter them.

Settings



- **Regi Type:** Regirock, Regice, Registeel, Regieleki or Regidrago
- **Modes:** Slow, Fast and Shiny Aware/AFK mode
- **Calibrated Ticks Until Battle Starts:** Used in Shiny Aware mode, read below

Instructions

1. Goto Options, set Text Speed to Fast, set Battle Effects to Off
2. Make sure the first Pokemon in your team is fast enough to be able to run from the battle or let it hold a Smoke Bomb, you CANNOT use Pokemon with Run Away ability as it will show the ability causing delay
3. If you are using **SLOW MODE** you can use any Pokemon.
4. If you are using **FAST MODE** your first Pokemon MUST be the follow:
 - > NOT a shiny
 - > DOES NOT have a showable ability (Intrepid Sword, Unnerve, Anticipation etc.)
 - > DOES NOT have high happiness (a.k.a, no shaking at the start of battle or extra dialog describing Pokemon's emotion)
5. If you are using **SHINY AWARE MODE**, you are highly recommended to follow **FAST MODE** (step 4) to optimizing timing. To calibrate the **ticks until battle starts**:
 - a) Run the program with the default time 626, when the battle UI shows up, there should be 2 down presses, your aim is to make the 2 presses happen right after the battle UI shows up (with a little leeway)



- b) Adjust the ticks by +/- 5 at a time, do not over adjust, and repeat a)
- c) If the 2 presses don't happen, or you only see one press without going into Pokemon list, that means the ticks are too low, the program thinks it is a false positive shiny
- d) If the 2 presses happens over 1-2 seconds after the battle UI shows up, the ticks are too high, the program may run away from a shiny
- e) If the 2 presses happens about 0.5 seconds after the battle UI shows up, that's perfect and you are good to go

6. For **Regirock, Regice and Registeel**: Walk up to the giant statue without lighting up any tiles on the floor



7. For **Regieleki or Regidrago**: You MUST have already encounter the Regi at least once, meaning you will have to walk on the tiles and pick the Regi you want, start a battle with it and run, this prevents an extra dialog from showing up when you first choose the Regi, after that stand in front of the statue



8. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

The program starts by running on the tiles of the corresponding Regi, then walk up to the statue to start the encounter.

For SLOW MODE or FAST MODE:

When the battle starts, user should pay attention if the Regi is shiny or not, if yes, plug out the board immediately or take the Switch out from the dock to stop the program from running! After a while it will run from the battle and start over again.

For SHINY AWARE MODE:

The program should get stuck in Pokemon summary screen when a shiny is found, you should be able to leave this overnight, when you see it is stuck in Pokemon summary screen and you have setup calibration correctly, it should be a shiny!

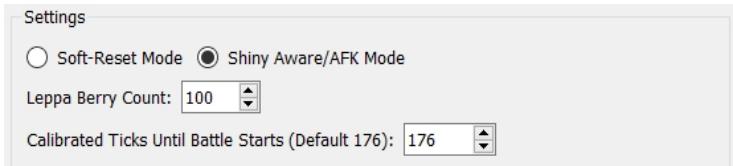
Config.h Detail

- **m_type**: 0 to 4 corresponding to Regirock, Regice, Registeel, Regieleki and Regidrago respectively
- **m_mode**: 0 = slow, 1 = fast, 2 = shiny aware
- **m_battleWaitTicks**: For Shiny Aware Mode only, ticks taken from talking to statue till battle UI shows up (NOT in milliseconds)

2.1.19 ShinyRegigigas

This program automatically loops encounter with Regigigas from the den in Giant's Bed!

Settings



- **Modes:** Slow, Fast and Shiny Aware/AFK mode
- **Leppa Berry Count:** No. of Leppa Berries in your bag, used in Shiny Aware mode
- **Calibrated Ticks Until Battle Starts:** Used in Shiny Aware mode, read below

Instructions

1. Goto Options, set Text Speed to Fast, set Battle Effects to Off
2. Captured all 4 Regis in Crown Tundra, have a friend to trade the remaining Regi to you, then bring all 5 Regis with you in your team
3. Stand in front of Regigigas den in Giant's Bed and save
4. If you are using **SHINY AWARE MODE**, you will need to do the following preparation:
 - a) First you need to grind for **Leppa Berries**, you can find them in Route 4 and 6. I would recommend route 6 since you can get Sitrus Berry which you can sell for money, but make sure you **stand behind** the berry tree since some wild Pokemon can walk up to you and battle. Use BerryFarmer for this, you don't need a lot of them, 154 of them will allow this program to run 24 hours (1550 encounters).

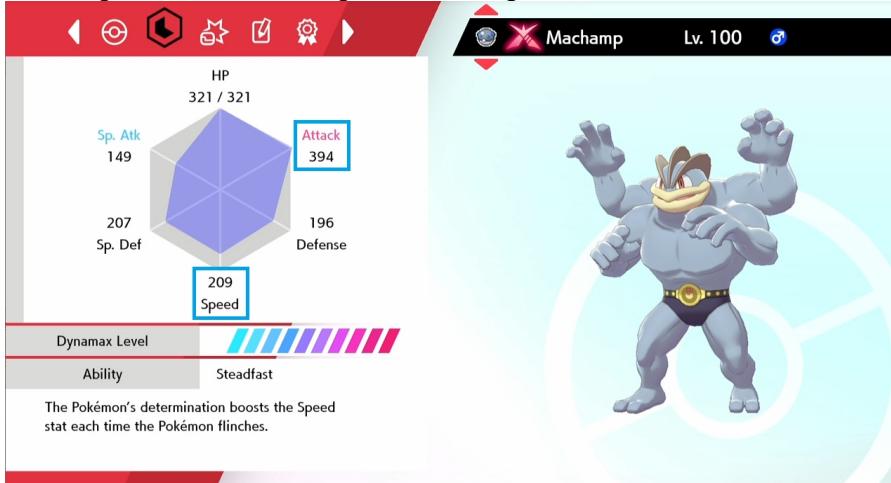
Route 4:



Route 6 (stand behind the tree):



- b) Get a **Fighting Type Pokemon** that can learn the move **Reversal (TR 21)**, the minimum base attack stat of the Pokemon must be at least 94, or minimum attack stat at lv100 to be **315** to OHKO Regigigas with +def nature. Minimum base speed stat is at least 16 (min **131** at lv100) to outspeed Slow Start Regigigas with +speed nature. Example: Machamp, Zamazenta, Urshifu, Gallade etc.



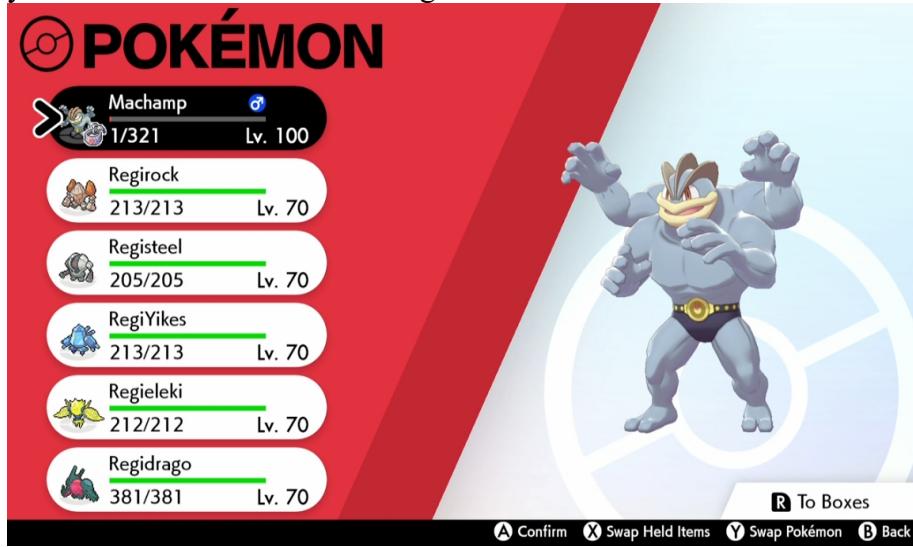
- c) Level up the Pokemon to lv100, then EV and IV train the Pokemon to maximize attack and speed stat, you should use a **+attack nature** mint (Adament etc.) if the Pokemon doesn't have it, these don't matter too much as long as the stats are enough stated in b), but if you don't know how to do so, check Appendix 2
- d) Buy a **Choice Band** and equip it to the Pokemon, you can buy it from Battle Tower with 50BP, if you don't have enough BP, use AutoBattleTower program.
- e) Teach the Pokemon at least one other **non-attacking move**, then place Reversal as the first move
- f) Now you need to lower your Pokemon's HP to 1, the fastest way to do this is you will need another Pokemon that can learn **False Swipe** and **only has that move** (this Pokemon preferably has very high attack to speed up the process, like Zacian etc.), put this Pokemon at the 1st of the party, and also bring the fighting type Pokemon with you
- g) Fly to Isle of Armor and cycle your way to a remote island at **Workout Sea**, where you can find **Ditto** which spawns regardless of weather



- h)** Use **False Swipe** until it **Transform** into your first Pokemon, then swap to your Fighting Type Pokemon, use the **non-attacking move** you taught at e) and wait until it lowers your HP to 1, then leave. Note that Ditto only has **5 PP** to hit you, if it runs out of PP, leave the battle otherwise it might kill you with **Struggle**.



- i)** You can also use **Endure** until a wild Pokemon lowers your HP to 1, but this is much slower and luck based, since wild Pokemon uses random moves
j) Now your fighting type Pokemon is ready (remember NOT to heal the Pokemon at PC! Putting it into Box is fine however), put this Pokemon to the 1st of your team and bring the 5 Regis with you, then head to Regigigas den at Giant's Bed, your team should look something like this:



- k)** Enter and win the raid manually at least once first, this will allow the game to cache load Regigigas model so the next time you battle the load times will be shorter,. After the battle, save the game.
IF YOU ARE RESTARTING THE GAME: Repeat this step otherwise the first battle will have longer load times!!!
l) Now you need to calibrate the **ticks until battle starts**, if you have used ShinyFiveRegi or ShinySwordTrio shiny aware version, you should be familiar with this. Run the program with the default time 176, when the battle UI shows

up, it should navigate to **Run** then follow by navigating back to **Fight** after a little, your aim is to make the Run press happen right after the battle UI shows up (with a little leeway)



- m) Adjust the ticks by +/- 5 at a time, do not over adjust, and repeat I)
- n) If the Run press doesn't happen, or it goes into Pokemon list, that means the ticks are too low, the program thinks it is a false positive shiny
- o) If the Run press happens over 1-2 seconds after the battle UI shows up, the ticks are too high, the program may kill a shiny
- p) If the Run press happens about 0.5 seconds after the battle UI shows up, that's perfect and you are good to go
- q) Finally, navigate to **Leppa Berry** in your Bag, make sure Reversal has **at least 10 PP**, if not you can use one right now. Then set the **Leppa Berry Count** in the settings in AutoControllerHelper, and leave the menu without moving the cursor



5. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

The program starts by interacting with the den and start the max raid battle with Regigigas, then base on the mode you're running:

For SOFT-RESET MODE:

When the battle starts, user should pay attention if Regigigas is shiny or not, if yes, plug out the board immediately or take the Switch out from the dock to stop the program from running! After a while it will restart the game and start over again.

For SHINY AWARE MODE:

Your first Pokemon will OHKO Regigigas if it's not shiny, leave without catching. After 10 battles, it will goto bag and use Leppa Berry on the first Pokemon's first move (which should be Reversal), then start battling again. The program should get stuck in Pokemon summary screen when a shiny is found, you should be able to leave this overnight, when you see it is stuck in Pokemon summary screen and you have setup calibration correctly, it should be a shiny! Note that it will occasionally leave the summary and back to the battle screen, but this is normal.

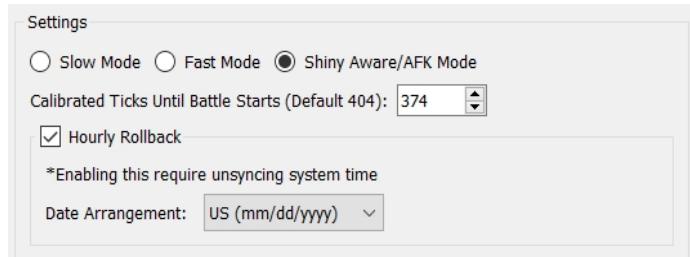
Config.h Detail

- **m_shinyAware:** false = soft-reset mode, true = shiny aware mode
- **m_leppaBerry:** For Shiny Aware Mode only, number of Leppa Berries in your bag
- **m_battleWaitTicks:** For Shiny Aware Mode only, ticks taken from Regigigas appears on screen till battle UI shows up (NOT in milliseconds)

2.1.20 ShinySwordTrio (ShinySpiritomb)

This program automatically loops encounter with Cobalion, Terrakion or Virizion, this also works for Spiritbomb in Ballimere Lake!

Settings



- **Fast Mode:** Slow, Fast and Shiny Aware/AFK mode
- **Calibrated Ticks Until Battle Starts:** Used in Shiny Aware mode, read below
- **Hourly Rollback (New in v4.5.0):** Roll system time back every hour, this will allow weather to be constant for much longer than 24 hours
- **Date Arrangement:** Match with your system's current settings, check it at "System Settings > Settings > Date and Time > Date and Time"
yyyy/mm/dd = JP, dd/mm/yyyy = EU, mm/dd/yyyy = US

Instructions

1. Goto Options, set Text Speed to Fast, set Battle Effects to Off
2. If you have enabled **Hourly Rollback** you must unsync system clock and have at least 3 game icons on HOME screen, or download more from eshop!
3. Make sure the first Pokemon in your team is fast enough to be able to run from the battle or let it hold a Smoke Bomb, you CANNOT use Pokemon with Run Away ability as it will show the ability causing delay
4. Run into the trio Pokemon and run, locations are below:



5. Adjust your position so the Pokemon's spawn point is right below you
6. Start camping
7. You are recommended to manually leave camp after step 5 and check if the position is correct, if not then repeat step 3 to 5
8. If you are using **SLOW MODE** you can use any Pokemon, but this accounts for everything (except for Run Away ability), for example:
 - > Pokemon with max happiness will smile at you occasionally when camping
 - > Weather conditions
 - > Pokemon with abilities at the start of battle
 - > Extra dialog of first Pokemon with high happiness

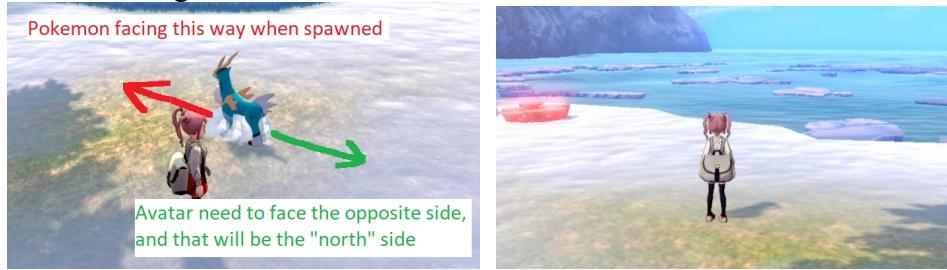


9. If you are using **FAST MODE**:
 - > Your first Pokemon MUST NOT be shiny, DOES NOT have a showable ability (Intrepid Sword, Unnerve, Anticipation etc.)
 - > ALL Pokemon in the team CANNOT have high happiness (when you camp, no Pokemon will do a close-up smile at the beginning, also no shaking at the start of battle or extra dialog describing Pokemon's emotion)
 - > The weather MUST be CLEAR (not Sunny, Snowing, Raining etc.), if it's not clear, you can change your system date until it is, you may also want to re-sync the system to current date when you want to catch the shiny Pokemon
 - > You are recommended to **set your system time to 12am** to make the most use of the program, if a day has passed it may lock into a non-shiny due to not being Clear weather anymore. From **v4.5.0** onward you can enable **Hourly Rollback** to have the program run much longer than 24 hours without affecting weather. But make sure you sync the time before you catch the Pokemon.
6. If you are using **SHINY AWARE MODE**, you MUST follow the restrictions in **FAST MODE**, with extra steps including calibrating the **ticks until battle starts**:
 - a) Do NOT allow Pokemon walking with you, you can stop this by talking to a Eevee costume kid in Freezington



- b) Do NOT ride on a bike
- c) If you are in a camp, leave a start the encounter, then run
- d) Now manually check which side of the Pokemon is facing when it spawns, you will have to make your avatar stand on top of the spawn point AND rotate the camera until it **face the opposite side** of the Pokemon. This will ensure the Pokemon will face the camera when it spawns so it will notice you immediately

and not walk away from the spawn point! You may need to spawn it manually a few times to get this correct.



- e) Run the program with the default time 404 (notice we are starting the program in the overworld, not inside camp), when the battle UI shows up, it should run away from the battle right after (with a little leeway), this is not the same as ShinyFiveRegi since this does not have two down presses!



- f) Adjust the ticks by +/- 5 at a time, do not over adjust, and repeat e)
 - g) If it does not run from battle, attacks the opponent or goto Pokemon summary, that means the ticks are too low, the program thinks it is a false positive shiny
 - h) If running away over 1-2 seconds after the battle UI shows up, the ticks are too high, the program may run away from a shiny
 - i) If running away happens about 0.5 seconds after the battle UI shows up, that's perfect and you are good to go
 - j) Run the program at least 3-5 times to make sure it is working properly
7. For **SLOW/FAST MODE**: You should be starting the program inside a camp; For **SHINY AWARE MODE**: You should be starting in the overworld, facing north; Now compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

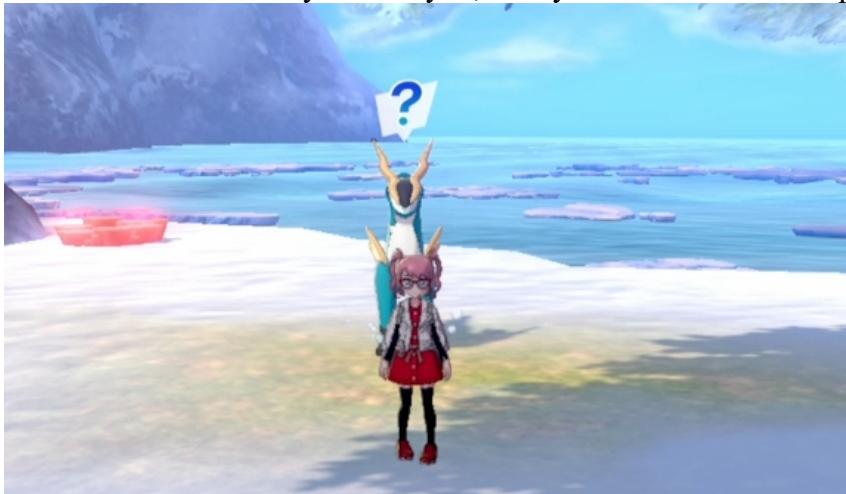
What does the Program do?

For SLOW MODE or FAST MODE:

The program starts by leaving the camp, the trio Pokemon should spawn on top of you and start the encounter. When the battle starts, user should pay attention if the Pokemon is shiny or not, if yes, plug out the board immediately or take the Switch out from the dock to stop the program from running! After a few moments it will run from the battle, camp on the spot and repeat the process again.

For SHINY AWARE MODE:

The program starts by walking down a little, start and leave camp, the trio Pokemon should spawn on north of you, if you set it up correctly, the Pokemon should be facing the camera and immediately notices you, then your avatar will walk up to start the encounter.



The program should get stuck in Pokemon summary screen when a shiny is found, you should be able to leave this overnight, when you see it is stuck in Pokemon summary screen and you have setup calibration correctly, it should be a shiny! If it's not a shiny it will run from the battle and repeat the process again.

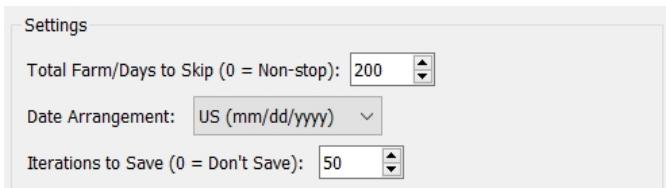
Config.h Detail

- **m_mode:** 0 = slow, 1 = fast, 2 = shiny aware
- **m_battleWaitTicks:** For Shiny Aware Mode only, ticks taken from walking into the Pokemon till battle UI shows up (NOT in milliseconds)
- **m_hourlyRollback:** true = roll back every hour, false = don't do it
- **m_JP_EU_US:** 0 = JP (yyyy/mm/dd), 1 = EU (dd/mm/yyyy), 2 = US (mm/dd/yyyy), used only if **m_hourlyRollback** = true

2.1.21 WattFarmer

This program farms watts from a wishing piece den, you can then spend the watts on buying Luxury Balls and trade for money, grind Digging Duo with TurboA etc.!

Settings



- **Total Farm/Days to Skip:** Set the no. of cycles to run, you can use this to skip frames of a day while farming
- **Date Arrangement:** Match with your system's current settings, check it at "System Settings > Settings > Date and Time > Date and Time" yyyy/mm/dd = JP, dd/mm/yyyy = EU, mm/dd/yyyy = US
- **Iterations to Save:** Save every that amount of loops has been run, since there's a small chance the game will crash if you are using this in Wild Area

Instructions

1. **v4.4.3:** Have at least 3 game icons on HOME screen, or download more from eshop!
2. Goto Options, set Text Speed to Fast
3. Stand in front of a wishing piece den
4. Unsync system clock, go back to the game
5. Activate y-comm glitch
6. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

1. Sync and Unsync clock and reset date to current date
2. Skip 1 frame (year) forward
3. Collect watts from den and exit
4. If number of iteration matches "**Iterations to Save**" the game will be saved, if day to skip is not 0, the program will stop at the home menu signaling it is finished, otherwise it will repeat from 1.

Config.h Detail

- **m_farmTotal:** 0 = infinite, max = 65535, the number of cycles/days to skip
- **m_JP_EU_US:** 0 = JP (yyyy/mm/dd), 1 = EU (dd/mm/yyyy), 2 = US (mm/dd/yyyy)
- **m_saveAt:** number of iterations to save, 0 = never saves (not recommended)

2.2 Pokemon Brilliant Diamond/Shining Pearl

2.2.1 ResetDialgaPalkia

This program helps you automatically find shiny Dialga/Palkia!

WARNING: This game is currently unstable and prone to crash at random times, while this program maybe able to recover by itself you are advices to restart the program if it happens.

Settings

N/A

Instructions

1. Set Text Speed to Fast, and Battle Effects off (optional)
2. Save in front of Dialga/Palkia as close as you can before it moves you forward



3. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

1. Restarts the game
2. Walk up to Dialga/Palkia to start battle
3. Repeat from 1 after battle started for a while

You MUST keep an eye if it is shiny or not, since the program does NOT stop on its own, which is why the delay is intentionally long so you have time to unplug the board. **If you want you can change the delay time by going to Commands.h line 30 and change 800 delay to something lower (maybe 700), but do this at your own risk!**

Config.h Detail

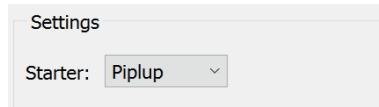
- **m_starter:** 0 = Turtwig, 1 = Chimchar, 2 = Piplup

2.2.2 ResetStarter

This program helps you automatically find shiny starters! (and also shiny Starly.....)

WARNING: This game is currently unstable and prone to crash at random times, while this program maybe able to recover by itself you are advices to restart the program if it happens.

Settings



- **Starter:** Turtwig/Chimchar/Piplup

Instructions

1. Set Text Speed to Fast, and Battle Effects off (optional)
2. Save in front of the lake entrance as close as you can



3. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

1. Restarts the game
2. Trigger all the dialog until briefcase opens
3. Pick the starter you chose and start battle
4. Repeat from 1 after battle started for a while

You MUST keep an eye if it is shiny or not, since the program does NOT stop on its own, which is why the delay is intentionally long so you have time to unplug the board. **If you want you can change the delay time by going to Commands.h line 35 and change 820 delay to something lower (maybe 720), but do this at your own risk!**

Config.h Detail

N/A

2.2.3 Menu Glitch v1.1.3

This program activates menu glitch, note that this glitch is very likely to be patched by Nintendo, if you don't want to update your game, make sure you disable **Auto-Update Software** in Switch settings, and also check **Prevent Game Update** in Smart Program General settings.

Settings

N/A

Instructions

Follow the instructions in **section 3.2.3**.

What does the Program do?

1. Pushes boulder to the right while activating Poketch
2. Fly to Celestic Town
3. Menu Glitch is now active

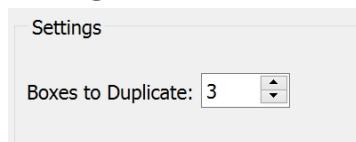
Config.h Detail

N/A

2.2.4 Box Duplication Glitch

This program duplicate a box of Pokemon in PC, for duplicating items, use **Box Operation** program instead (**section 2.2.5**).

Settings



- **Box to Duplicate:** No. of boxes to duplicate

Instructions

Follow the instructions in **section 3.2.4**.

What does the Program do?

1. Enter 2nd menu
2. Copy current box and move to the right
3. Exit 2nd menu
4. Move to the box on the right
5. Repeat

Config.h Detail

- **m_boxCount:** No. of boxes to duplicate

2.2.5 Box Operation

This program can release, take items from boxes of Pokemon, or duplicate all items in a single box.

Settings



- **No. of Boxes:** how many boxes to do operation
- **Operation:** Release, Bag Item, Duplicate Item

Instructions

Follow the instructions in **section 3.2.5**.

What does the Program do?

Release/Bag Item:

1. Do operation per pokemon in each boxes

Duplicate Item:

1. Enter 2nd menu
2. Bag all items of the current box
3. Exit 2nd menu
4. Repeat

Config.h Detail

- **m_boxCount:** No. of boxes to do operation
- **m_operationType:** 0 = Release, 1 = Bag Item, 2 = Duplicate Item

2.3 Other Programs

2.3.1 TurboA

This program spams A, that's it. You can use this to farm Digging Duo, if you don't have enough watts, use WattFarmer first. You can also use this for fossil farming, but it only works for the top slot, so use AutoFossil instead. On Isle of Armor DLC, you can use this for Cram-o-matic as well, check details below.

Settings

N/A

Instructions

1. Stand in front of a Digging Duo or Cara Liss
2. If you are using this to grind Cram-o-matic, it takes about 7 seconds for each loop, so count the total number of items you are giving to Cram-o-matic, divide by 4 and multiply by 7, this will give you estimated time when it will finish. Be sure to stop the program before this time since the program will break if you don't have enough item and the program will start giving Cram-o-matic other items and save in the process!
3. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy

What does the Program do?

It spams A, lmao.

Config.h Detail

N/A

2.3.2 SmartProgram

This program allows you to use Smart Programs.

Settings

N/A

Instructions

1. Compile and load the program to the board, disconnect current controller and connect Arduino/Teensy
2. Please refer to **section 1.5** for full instruction

3. Smart Program Instructions

3.1 Pokemon Sword/Shield

3.1.1 Auto Battle Tower

This program works the exact same as Native Program version, please refer to [section 2.1.2](#) for instructions.

3.1.2 Auto Day Skipper

This program helps you day skip, **you MUST run Y-Comm Glitch program before this.**

- ✓ This program make use of System date settings, you **MUST** go to Smart Program settings and set current date and date arrangement you match your Switch.



Program Settings

You **MUST** set Switch's date arrangement at Smart Program Settings!
This program works regardless of Switch's current date.

Days to Skip:

Estimated Time Left: ---

- **Days to Skip:** set the number of days you want to skip

Running the Program

For US/EU, it will roll back to 2000, sync to current year start skipping, when it reaches 2060 it will sync to current year and repeat. For JP it will do normal day skips until 2060/12/31 then sync to current date and repeat. While the program is running it will give you an estimated time how long until it finishes, estimate gets more accurate over time.

Days to Skip:

Estimated Time Left: 00h00m39s (52 skips left)

You may notice if the time is 11:59pm the program will pause, this is to allow it to pass to 12:00am to skip a day naturally. If you want to prevent this, start after midnight.

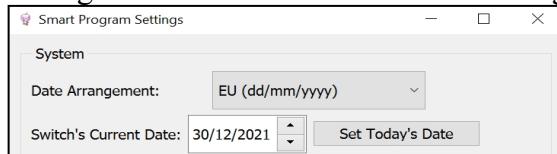
This program runs faster for EU but slower for US/JP compare to Native Program, for longer skips you are recommended to use those instead. Here are the stats for 1000 skips:

	JP	EU	US
Limited	9:28	12:08	12:08
Unlimited	9:47	12:32	12:32
Smart Program	10:47	10:57	12:33

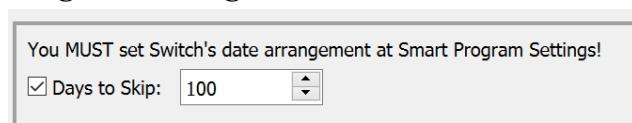
3.1.3 Auto Loto

This program runs almost identical to Native Program version, read **section 2.1.5** and come back here. You MUST run Y-Comm Glitch program before this.

- ✓ This program make use of System date settings, you MUST go to Smart Program settings and set current date and date arrangement you match your Switch.



Program Settings

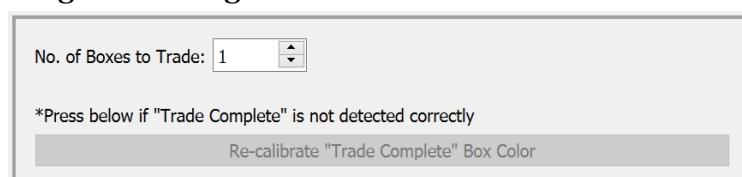


- **Days to Skip (optional):** set the number of days you want to skip

3.1.4 Auto Surprise Trade

This program works almost identical to Native Program version, with the exception of being able to immediately start trade when it is completed, read **section 2.1.9** for initial instructions first and come back here. You are recommended to start the program inside Pokemon Center, this program can also connect internet for you if not already.

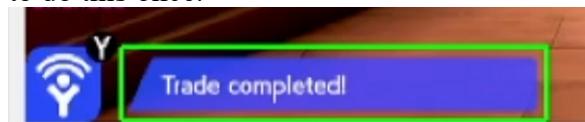
Program Settings



- **No. of Boxes to Trade:** these boxes should be adjacent to each other.
- **Re-calibrate "Trade Complete" Box Color:** Refer below

Running the Program

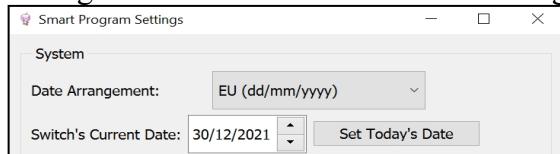
While running the program, you may find it sometimes unable to detect Trade Complete (especially the first trade), this is because the message box is semi-transparent and can change depend on where you are. **This is also why you are highly recommended to run this inside Pokemon Center so there will be no background changes.** If you see this happen, press the Re-calibrate "Trade Complete" Box Color button. You should only need to do this once.



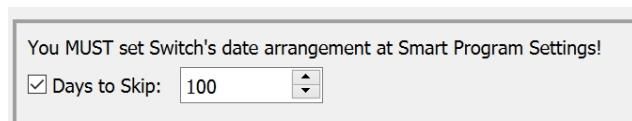
3.1.5 Berry Farmer

This program runs almost identical to Native Program version, read **section 2.1.7** and come back here. You MUST run Y-Comm Glitch program before this.

- ✓ This program make use of System date settings, you MUST go to Smart Program settings and set current date and date arrangement you match your Switch.



Program Settings



- **Days to Skip (optional):** set the number of days you want to skip

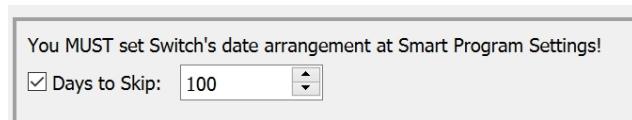
3.1.6 Daily Highlight Farmer

This program runs almost identical to Native Program version, read **section 2.1.10** and come back here. You MUST run Y-Comm Glitch program before this.

- ✓ This program make use of System date settings, you MUST go to Smart Program settings and set current date and date arrangement you match your Switch.



Program Settings



- **Days to Skip (optional):** set the number of days you want to skip

3.1.7 Max Raid Battler

This program automatically do raid battles for you, it is useful to get large number of items from raids, like Exp candies and TRs. This program also catches all the pokemon in the raid den.

Program Settings

Wishing Pieces to Spend:

- **Wishing Pieces to Spend:** This should be LESS than how many you currently have, if you have 100 wishing pieces, put 99 at max

Instructions

1. Set Text Speed to Fast, Battle Effects to Off and Send to Boxes to Automatic
2. Make sure you have purchase equal or more amount of Pokeballs than Wishing Piece, and make sure you have enough space in your Box, because the program will attempt to catch ALL pokemon in the raids
3. Have only one Pokemon in your team, and the Pokemon should only have one attacking move. You are recommended to use Zacian for maximum damage



4. Pick a den you want to grind, stand in front of it and save, it does not matter if you have put a wishing piece into it or now
5. Make sure you stay away from wild Pokemons that can run into you
6. Now you can start the program

Running the Program

This program is relatively simple, it detect whether you are at the Invite Others screen and starting the raid. It will mesh A until raid completes and catches the Pokemon, rinse and repeat.



3.1.8 Purple Beam Finder

This program automatically finds purple beam, unlike Native Program version, you do not have to stop the program manually.

Program Settings



- Den Hole Position: den hole position set by user

Instructions

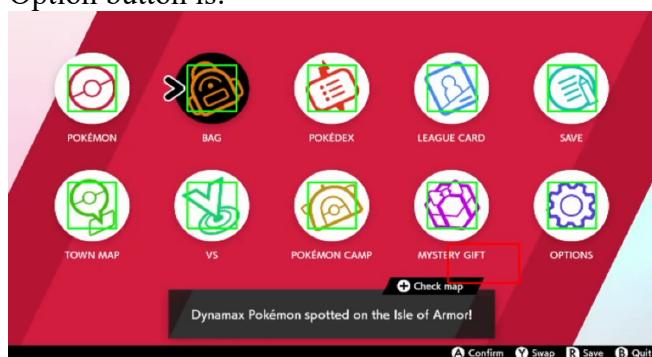
1. Pick a den of interest, stand in front of it
2. Press the R-stick to zoom in camera (if not already)
3. At the video output, move the red box towards the hole of the den, you cannot move it too low on the screen since it will be obscured by the textbox, rotate the camera if necessary



4. Now you can start the program

Running the Program

The program starts by setting the text speed to slow, it will be able to detect where the Option button is:

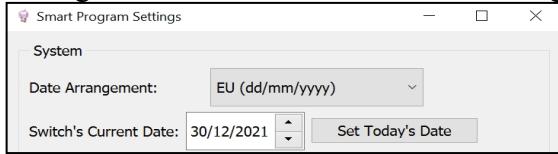


After that it is very straightforward, it will check if the den color is correct before the game saves, if not purple beam it restarts and try again, if a purple beam is found it will set the text speed back to Fast and save the game for you.

3.1.9 Watt Farmer

This program runs almost identical to Native Program version, read **section 2.1.21** and come back here. You MUST run Y-Comm Glitch program before this.

- ✓ This program make use of System date settings, you MUST go to Smart Program settings and set current date and date arrangement you match your Switch.



Program Settings



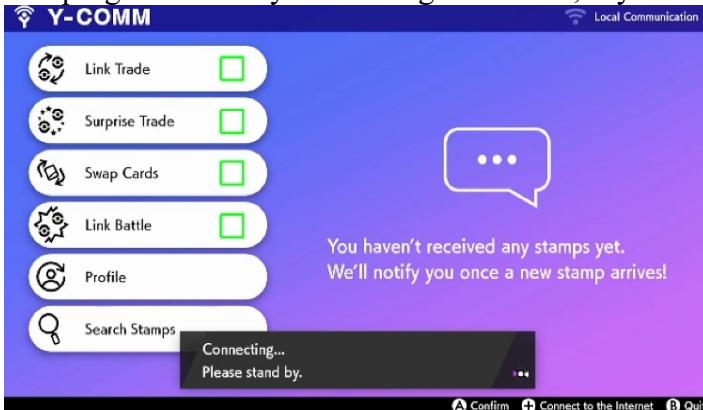
- **Days to Skip (optional):** set the number of days you want to skip

3.1.10 Y-Comm Glitch

This program automatically activates y-comm glitch for you, no setup is required, you can start anywhere in the HUB world.

Running the Program

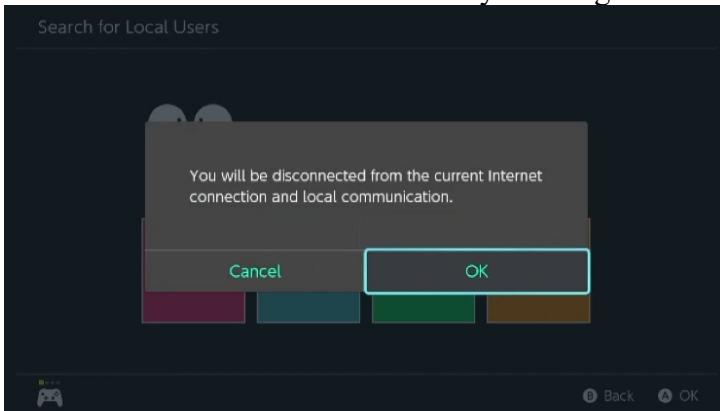
The program starts by connecting to internet, if you already did, it skips this part.



Next it will look for an opponent on Single Battle.



When an opponent is found, it will go to Profile and search for local friend, this will kill the internet connection and activates y-comm glitch.



3.2 Pokemon Brilliant Diamond/Shining Pearl

3.2.1 Reset Dialga/Palkia

This program works almost identical to Native Program version, with the exception of being able to stop when shiny is found, please refer to **section 2.2.1** for initial setup.

- ✓ This program make use of Stream Counter from settings
- ✓ This program can prevent game update (set it in settings)

Additional Instructions

1. The first pokemon MUST NOT have high happiness, otherwise it will fluctuate the delay time calibration
2. This program calibrates the time taken from the start of battle until the battle UI shows up at the first battle, when a shiny shows up, the delay time will be much larger hence shiny can be detected. Even though very unlikely, **you MUST monitor the first encounter and make sure it is not shiny, since the program will ignore that encounter.**
3. You should avoid opening new applications while program is running to avoid video output delay shifting.

3.2.2 Reset Starter

This program works almost identical to Native Program version, with the exception of being able to stop when shiny starter is found (shiny Starly will be ignored), please refer to **section 2.2.2** for initial setup.

- ✓ This program make use of Stream Counter from settings
- ✓ This program can prevent game update (set it in settings)

Additional Instructions

1. After **v5.0.1** update you do not need to monitor first encounter anymore
2. You should avoid opening new applications while program is running to avoid video output delay shifting.

3.2.3 Menu Glitch v1.1.3

This program activates menu glitch, note that this glitch is very likely to be patched by Nintendo, if you don't want to update your game, make sure you disable **Auto-Update Software** in Switch settings, and also check **Prevent Game Update** in Smart Program General settings.

Instructions

1. Set Text Speed to Fast
2. Go to HM list in Poketch and move cursor to Fly



3. Go to Route 211 to the left of Celestic Town, stand to on the left side of this rock
4. Have your Poketch at small screen and start program



3.2.4 Box Duplication Glitch

This program duplicate a box of Pokemon in PC, for duplicating items, use **Box Operation** program instead ([section 3.2.5](#)).

Instructions

1. Set Text Speed to Fast
2. Activate Menu Glitch, either manually or with Native/Smart Program
3. Set how many box to duplicate in settings
4. Go to the box you want to duplicate, there MUST be a Pokemon or Egg at the top left of this box
5. Make sure the number of boxes to the right of this box are empty, since this program will populate to the right



3.2.5 Box Operation

This program can release, take items from boxes of Pokemon, or duplicate all items in a single box.

Instructions

1. Set Text Speed to Fast
2. Duplicate Item will only duplicate the same box over and over again until target box number, you MUST have menu glitch active
3. Make sure all boxes are full of Pokemon (30 each), for bag/duplicate item, it is not required for all pokemon to have item, but recommended for max efficiency
4. Go to the first box (leftmost) you want to do the operation (or the box you want to duplicate items), you do not need to press X or Y to change cursor type at all
5. Set no. of boxes and operation type in settings and start program (**for duplicate item, it is recommended to not have no. of boxes to be higher than 30 since after item reaching maximum 999 the program may break, so please check your item first**)

Running the Program

For release/bag item, it is self explanatory. For duplicate item, it will first enter the 2nd menu, take all item from the current box, exit 2nd menu to respawn all items, and repeat.

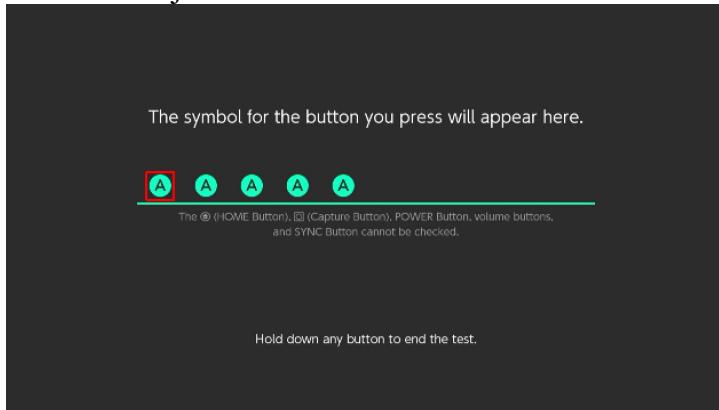
3.3 Other Programs

3.3.1 Dev: Brightness Mean Finder

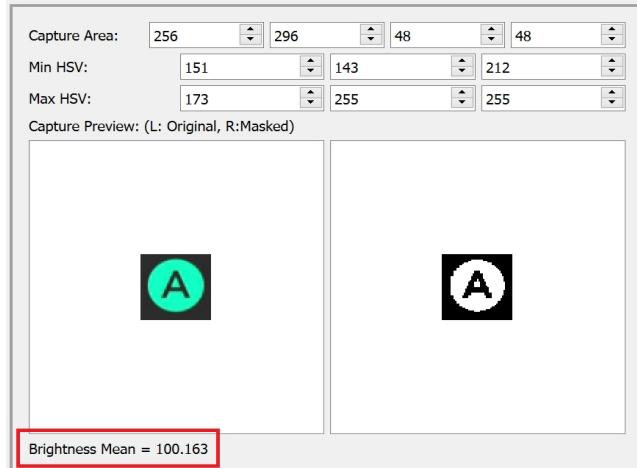
This program is only for development purposes, this is used to find of the range of Hue-Saturation-Value for certain area on screen.

Instructions

1. Move and adjust the size of the detection box to the area of interest



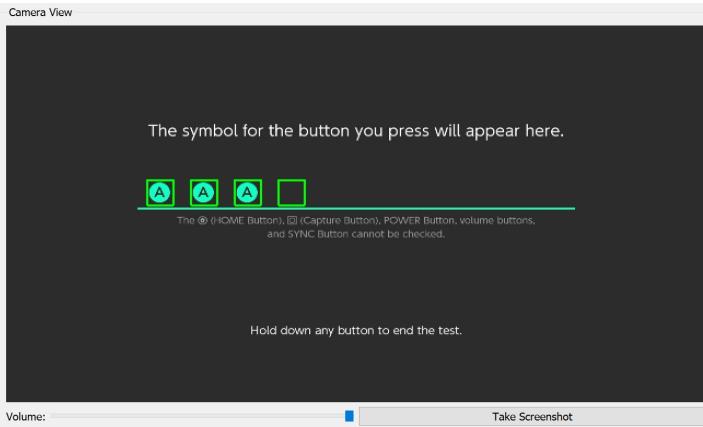
2. Start the program, and adjust HSV values to include on the color you want, in this example would be the green-cyan color, you should see colors you want appear white and others filtered out as black



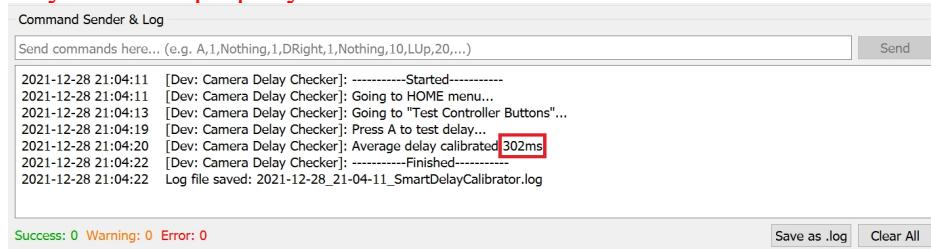
3. Finally Brightness Mean is the average value of white pixels to the area, 0 is all black and 255 is all white, this value will allow you to determine a threshold for color detection

3.3.2 Dev: Camera Delay Checker

This program checks the video output delay of your capture card. This is useful to test if everything is working fine for your hardware and software setup.



This program will go to the **Test Controller Buttons** menu and press A four times and calibrate the delay of the video output of your capture card. If successful, it should output the delay time in the Log window. **If the delay is above 1000ms, other Smart Programs may not work properly.**

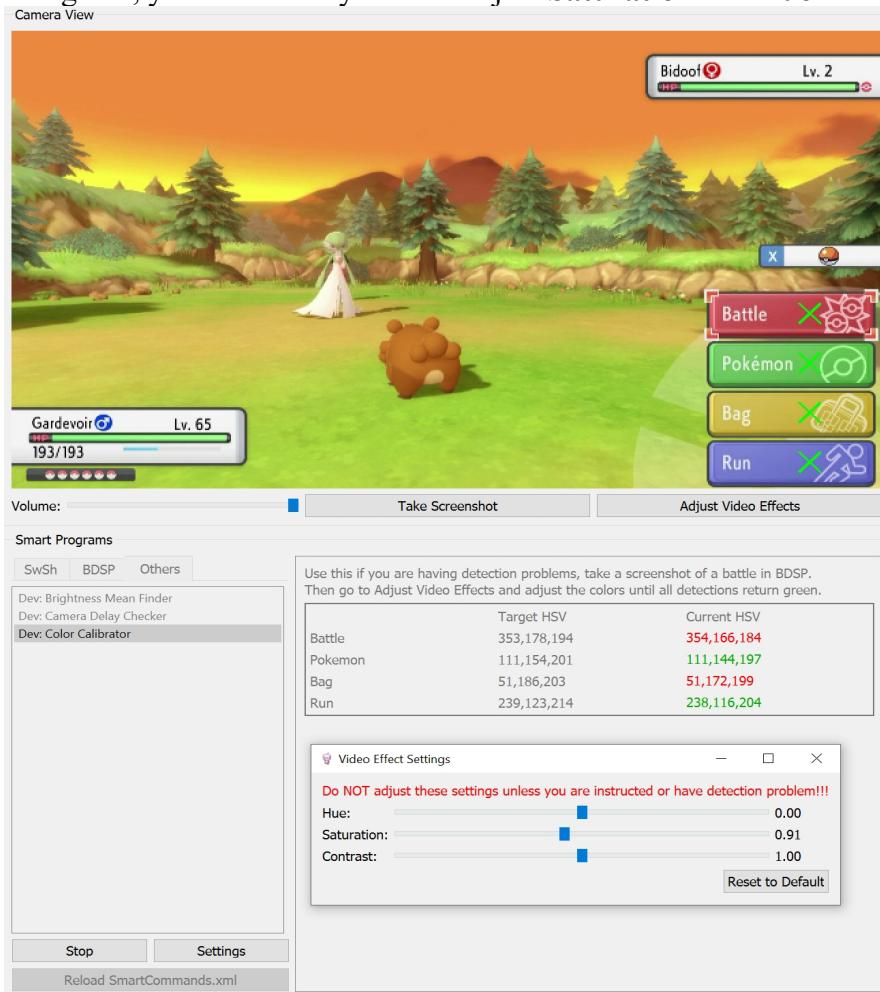


3.3.3 Dev: Color Calibrator

This program helps calibrating video output colors, since some capture cards does not output the same as the one being tested, this happens to most USB Capture Cards with no TV output.

Instructions:

1. Take a screenshot of a battle in BDSP
2. Start Smart Program
3. Click on **Adjust Video Effects** and change the value until all the detections return green, you should only need to adjust **Saturation** and **Hue**.



Appendix

Appendix 1: Y-Comm Link Battle Day Spoofing Glitch

1. Connect to the internet
2. Do a y-comm link battle (Single/Double)
3. Wait until “An opposing trainer has been found” dialog shows up
4. Disconnect from the server with the follow methods:
Handheld mode:
 - a. Hold down HOME button to bring up quick menu
 - b. Turn on Airplane mode, then turn it off after DC error message show up



Docked (wired connection):

- a. Simply take the Switch out from the dock and put it back in

Docked (Wi-Fi connection):

- a. Goto HOME menu and goto any profile
 - b. Goto Add Friend -> Search for Local Users
 - c. Confirm disconnecting from the current internet connection
 - d. Go back to game
5. Day spoofing glitch is now active, goto Pokemon Center to prevent crashing
 6. This glitch works locally with 2 Switches as well

Appendix 2: How to IV/EV Train, Swap Ability and Change Nature

NOTE: This guide only teaches you the minimum things you need to know to max your Pokemon's IV/EV for AutoBattleTower and AutoTournament, it will not include how to make defensive sets or how to build an actual competitive team.

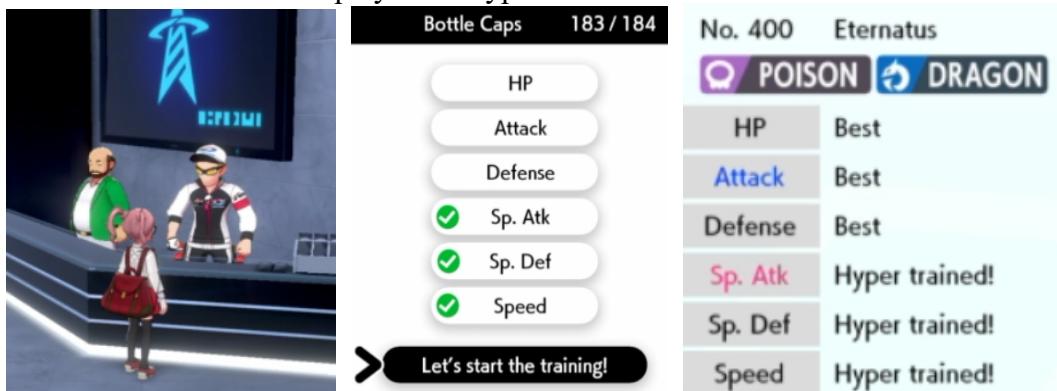
IV Training (Hyper Training)

IV is Individual Values, each Pokemon has 6 IVs (HP, Atk, Def, SpAtk, SpDef, Spd) and they are determined when you first caught or hatched them. If you have the IV checker for Pokemon Box (by defeating Leon for the first time on Battle Tower), you can check them there by pressing +.

No. 120 Rafts

	PSYCHIC FAIRY
HP	Best
Attack	Pretty good
Defense	Very good
Sp. Atk	Very good
Sp. Def	Decent
Speed	Best

We are aiming for all the stats to be “Best”, to do that, first you must level up your Pokemon to lv100. The only fastest way to do this is to use **Exp. Candies** which you can get by doing a lot a LOT of raids. You will also need a **Bottle Cap** for each stat that is not “Best”, you can grind Battle Caps by using TurboA program on the left Digging Duo. Once you have the lv100 pokemon and Battle Caps, goto the rightmost receptionist inside Battle Tower, select all the stats you need to change, this will Hyper Train your pokemon and those stats will be displayed as Hyper trained! in the IV checker.



EV Training

Effort Values are hidden stats that your Pokemon gain by defeating other Pokemon, they can increase Pokemon's stat growth. A Pokemon can have total of 510 EVs with maximum of 252 EV per stat, all of the Pokemon used in AutoBattleTower and AutoTournament will have 252/252 spread on one of the attack (Atk/SpAtk) stat and Speed stat to maximize the power output and make sure they are faster than the opponent.

Resetting All EVs: EVs are all zeroes when you first caught or hatched the Pokemon, but once you bring it with you and start defeating Pokemon, they will start gaining EVs. So the Pokemon used in your playthrough will have EV spread across all the stats, if you intend to use them you will have to reset all the stats first. For that you will need berries, here are the list of berries that removes EV from your Pokemon:

- Pomeg Berry - Removes 10 HP EVs
- Kelpsy Berry - Removes 10 Attack EVs
- Qualot Berry - Removes 10 Defense EVs
- Honde Berry - Removes 10 Special Attack EVs
- Grep Berry - Removes 10 Special Defense EVs
- Tamato Berry - Removes 10 Speed EVs

You can find these berries at the 3 trees under the bridge in the Wild Area between Bridge Field and Stony Wilderness. To reset all EVs, simply feed your Pokemon will each of those berries until it has no effect on the Pokemon.

Maximizing EVs: There are few ways to EV train your Pokemon, the first one is PokeJobs, you can do this once per day and you have to do it 3 times to maximize one stat, even with y-comm glitch to skip day immediately this will still be very slow. The fast method require you to have a LOT of money. To do that you can use WattFarmer and grind a lot of watts, find a Watt Trader in the Wild Area that is selling Luxury Balls, buy 999 of them and sell them all in the Pokemon Center, you will need \$520,000 to EV train one Pokemon. Now you have to buy vitamins from the shop in Pokemon Center at South part of Wyndon. Each vitamin has a different effect:

- HP Up - Adds 10 HP EVs
- Protein - Adds 10 Attack EVs
- Iron - Adds 10 Defense EVs
- Calcium - Adds 10 Special Attack EVs
- Zinc - Adds 10 Special Defense EVs
- Carbos - Adds 10 Speed EVs

Let's look at Zacian's set:

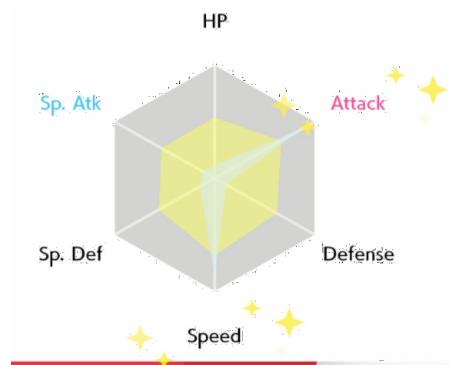
Zacian @ Rusted Sword

Ability: Intrepid Sword

EVs: 252 Atk / 4 Def / 252 Spe

Adamant Nature

- Iron Head



We will need to by 26 Protein and 26 Carbos, you can also by 1 Iron for the defense stat but it will not affect the outcome very much. Now give the vitamin for 252 EV stat FIRST to your Pokemon before giving the 4 EV stat, as one vitamin worth 10 EV. When done, if you check your Pokemon's summary, check stat page and press X, you will see the maximized stat has glitters around it.

Swapping Ability

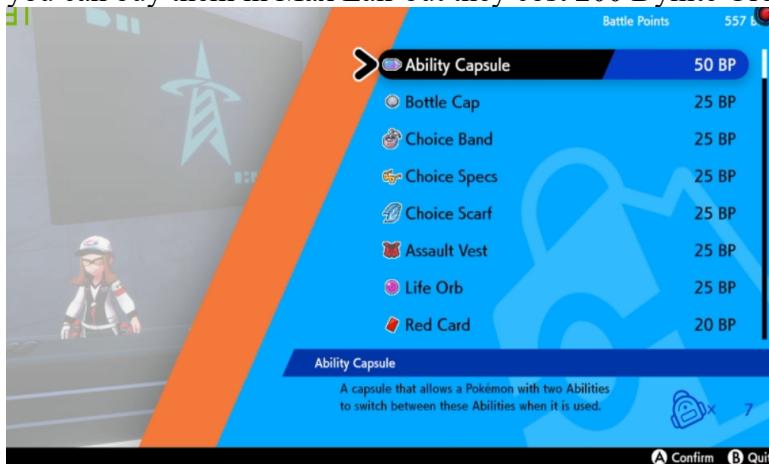
Each Pokemon can have 2 normal ability and 1 hidden ability, you can check a Pokemon's available abilities at Serebii.Net, for example Crawdaunt's ability:

Hyper Cutter: Opponent cannot lower this Pokémon's Attack value. This Pokémon may still lower its own Attack value using a move of by itself.
Shell Armor: Opponent's moves cannot Critical Hit.

Hidden Ability (Available):

Adaptability: Increases the Same Type Attack Bonus from *1.5 to *2.

If the Pokemon has Hidden Ability, you CANNOT change it, otherwise you have catch/breed a new one. But if it has a normal ability, you can change it between the two by using an Ability Capsule which you can buy in Battle Tower, they cost 50BP each. If you have the DLC you can use Ability Patch to change normal ability to Hidden Ability, you can buy them in Max Lair but they cost 200 Dynite Ore each.



Changing Nature

A Pokémon's Nature affects the value of two of its stats, ultimately increasing one of its non-HP stats (Attack, Defense, Special Attack, Special Defense, or Speed) by 10% and decreasing another by 10%. Nature is determined when Pokémon is first caught or hatched, you can manipulate Pokémon's nature with Trace ability for wild Pokémon or Everstone item while breeding, but I'm not going to cover it here. You can check your Pokémon's base nature in its summary.



As you can see this Zacian doesn't have Adamant nature, to change that, we will need to buy mints, they cost 50BP each.



Give the mint to your Pokemon will permanently change their battle nature until you give them mint again. The base nature shown in summary will still be the nature before you change it. The only way you can tell if your Pokemon currently has the correct battle nature is by viewing it in Pokemon Box, red is increased stat and blue is decreased stat, refer the nature table on the right.

No. 398	Zacian
FAIRY	
HP	325/325
Attack	394
Defense	266
Sp. Atk	176
Sp. Def	267
Speed	375

Nature	Increased	Decreased
Lonely	Attack	Defense
Brave	Attack	Speed
Adamant	Attack	Sp. Attack
Naughty	Attack	Sp. Defense
Bold	Defense	Attack
Relaxed	Defense	Speed
Impish	Defense	Sp. Attack
Lax	Defense	Sp. Defense
Timid	Speed	Attack
Hasty	Speed	Defense
Jolly	Speed	Sp. Attack
Naive	Speed	Sp. Defense
Modest	Sp. Attack	Attack
Mild	Sp. Attack	Defense
Quiet	Sp. Attack	Speed
Rash	Sp. Attack	Sp. Defense
Calm	Sp. Defense	Attack
Gentle	Sp. Defense	Defense
Sassy	Sp. Defense	Speed
Careful	Sp. Defense	Sp. Attack

Appendix 3: Making Your Own Programs

v4.2.0 update allow users to create their own programs and use AutoControllerHelper to compile, as long as it follows the Bots folder format. The program's name must start with prefix "**Others_**" and does not contain any spaces, and folder must also have the same name as the program. For example, copying **TurboA** folder gives **TurboA - Copy**, rename the folder to **Others_TurboB** and rename the **TurboA.c** inside to **Others_TurboB.c**, AutoControllerHelper will now be able to recognize it and compile it. However you will not be able to edit **Config.h** file with AutoControllerHelper, you must edit it manually.

Program: TurboB

MCU Type: atmega16u2 (Arduino UNO R3)

Information

No info available for custom-made program, please edit the source code manually.
Make sure folder name matches the .c program file!
When finished, you can use this to generate the .hex file.

Save & Generate HEX file Show Compile Log

0%

Like what I'm doing? Support me [here!](#)

Credits & Special Thanks

shinyquagsire23 - Original Switch-Fightstick code

Just-Kim - Beta testing

SaxManDan - Beta testing

sug@r - Auto battle tower button sequence

(https://twitter.com/satoon_sugar/status/1208253657470226432)

甘木 まさき@maginegno - Auto tournament guide

(<http://niwaka-syndrome.blog.jp/archives/20509394.html>)

blip - Program improvement contribution

Pleebz - Program improvement contribution

zsebedits - Shiny aware contribution on ShinyFiveRegi

Yeray Arroyo - Shiny aware contribution on ShinySwordTrio

Change Log

v1.0.0:

- US and EU Day Skipper initial release

v1.1.0:

- Day Skipper optimization, added Day Skipper for Japanese region, Auto Loto initial release

v2.0.0:

- No Limit Day Skipper, Auto Fossil, Auto 3 Day Skipper, Turbo A, Watt Farmer initial release

v2.0.1:

- Use array in No Limit Day Skipper, now can actually go infinite

v2.0.2:

- Changed HOME button press before SR in Auto Fossil and Auto 3 Day Skipper to 40

v2.0.3:

- Watt Farmer saves every 100,000W (50 skips)

v2.0.4:

- Added 10 to Auto 3 Day Skipper, Auto Loto, Watt Farmer when going HOME screen or back to game

v2.1.0:

- Berry Farmer initial release, added optional day to skip in Auto Loto

v2.2.0:

- Watt Farmer, Berry farmer now speeds up with syncing time

v3.0.0:

- Auto Host, Box Release initial release, increase HOME button after first time connect board from 50 to 60

v3.1.0:

- Added random link code for Auto Host

v3.1.1:

- Set link code plus button in Auto Host change from 35 to 40, ready button from 20 to 30

v4.0.0:

Revamp of the code, now allow to program much more then before:

- The following program has added Date Arrangement so user don't have to set specific date to make it work: Auto3DaySkipper, AutoHost, AutoLoto, BerryFarmer, WattFarmer
- Combined DaySkipper US, EU and JP into one (JP is still recommended)
- AutoHost huge changes: allow changeable internet connection time, allow skipping 3 days to a random pokemon, allow adding friends during inviting others
- BoxSurpriseTrade, FriendDeleteAdd, EggCollector, EggHatcher initial release
- Added AutoControllerHelper.exe to allow least user interaction with source code

v4.1.0:

- Fixed inconsistency for 10280 egg group in EggHatcher
- Improvement on DaySkipper and DaySkipper_Unlimited, JP can do 4687 skips per hour vs previously 3484, US and EU can do 3515 skips per hour vs previously 2540
- Added warning for people who didn't install WinAVR correctly

v4.2.0:

- Added local mode in auto host
- Even faster DaySkipper and DaySkipper_Unlimited, JP can now do 6716 skips per hour, while US/EU can do 5172 skips per hour
- AutoBattleTower, AutoTournament and GodEggDuplication initial release
- Allow user made programs to be compiled via AutoControllerHelper

v4.2.1

- Changed all programs to use B button to connect (except for TurboA)
- PurpleBeamFinder first release

Bug fixes for DLC update:

- Auto3DaySkipper: Changed first time talk to den will not collect watts, account for Pokemon that can't be caught, adjusted game restart time for DLC update
- AutoBattleTower: Added missing A press, this will slightly improve the efficiency
- AutoFossil: Adjusted game restart time for DLC update
- AutoHost: Applied Auto3DaySkipper changes, fixed bug for local mode without skipping 3 days, added 8 digit link code support, changed so that adding friends during inviting others only take 30 seconds
- BerryFarmer: Fixed inconsistent timing in the Isle of Armor
- DaySkipper & DaySkipper_Unlimited: Fixed for crashing for some people, changed delay to 14 to 16, this will make US/EU do 4945 skips per hour and JP do 6338 skips per hour
- EggHatcher: Added one more small cycle for group 5120

v4.2.2

- Hotfix for AutoBattleTower forgot to update m_endIndex from 35 to 37

v4.2.3

- Hotfix for GodEggDuplication not working properly after DLC update (changed 70 to 82 and 94 to 104) and fixed end of the program not mesh Home over and over

v4.3.0

- Added update checking support for AutoControllerHelper
- ShinyFiveRegi and ShinySwordTrio initial release

v4.3.1

- Added missing Joystick.h commit

v4.4.0

- Added shiny aware to ShinyFiveRegi (contributed by zsebedits)
- New ShinyPixelChecker.exe for stream counter and play sound when shiny is found
- Set progress bar to 0% whenever a change is made

v4.4.1

- Stability fix for Regieleki and Regidrago in ShinyFiveRegi
- New shiny aware version for ShinySwordTrio release (contributed by Yeray Arroyo)
- Added AutoControllerHelper support for EggCollector_IT
- Reduce AutoFossil time significantly with Hi-tech Earbuds

v4.4.2

- Stability fix for GodEggDuplication
- Added AutoFossil for German (may work on other languages too)
- Added extra instructions for ShinySwordTrio shiny aware version

v4.4.3

- Firmware 11.0 fix for various programs (now required minimum 3 game icons)
- Minor ShinyPixelChecker bug fix

v4.4.4

- Final ShinySwordTrio shiny aware version stability fix
- Added warning on AutoTournament not working for Galarian Star Tournament

v4.5.0

- DailyHighlightFarmer first release
- ShinyRegigigas first release
- Updated default time of shiny aware ShinySwordTrio to 404
- Added Hourly Rollback option for ShinySwordTrio
- Improvement on Auto3DaySkipper 1m47s -> 1m40s per cycle
- Improvement on AutoLoto 21.3s -> 19.9s per collection
- Improvement on BerryFarmer 16.9s -> 16s per collection
- Improvement on WattFarmer 10s -> 8.2s per collection
- Fixed DaySkipper sometimes missed Home button input
- Gave an option for user to check download page manually for new version if update checker is not working

v4.5.1

- Hotfix for Auto3DaySkipper not working properly for JP date arrangement

v4.5.2

- AutoControllerHelper now opens with last used program
- Added AutoControllerHelper_Launcher.exe, no need to create shortcut by hand
- Hex files are now generated to Hex folder
- Changed the window layout to allow resizing, fixed against high DPI monitors
- Updated the following programs affected by 13.0.0 firmware update:
Auto3DaySkipper, AutoHost, AutoLoto, BerryFarmer, DailyHighlightFarmer, ShinySwordTrio, WattFarmer

v5.0.0

- Smart Program release
- BDSP_ResetDialgaPalkia first release
- BDSP_ResetStarter first release
- Rewrite manual for more detailed tutorials

v5.0.1

Native Program:

- BDSP_ResetStarter and BDSP_ResetDialgaPalkia will force prevent game update (also works on games that are up-to-date), also increase delay for entering game (reported by Disco_Stu)

Smart Program:

- Allow Smart Program general settings to be changed while running
- Added option in Smart Program to prevent game update (for BDSP programs only)
- Added “Adjust Video Effects” to change video hue, saturation and contrast
- Added “Dev: Color Calibrator” to adjust color if user experience detection problem
- Reset Starter (BDSP) now ignore Shiny Starly
- Adaptive title screen detection for Reset Starter (BDSP) and Reset Dialga/Palkia
- Reset Starter (BDSP) and Reset Dialga/Palkia can now prevent game update (contributed by pierre)

v5.1.0

Native Program:

- Internal refactoring to use flags instead of incremental enum, this now allows any button combinations like UP | A or DPAD_RIGHT | R etc.
- TurboA now uses new standard that follows Smart Programs, durations will be consistent with 1 = 48.05ms
- Added BDSP_MenuGlitch113, BDSP_BoxDuplication and BDSP_BoxOperation (works exactly the same as Smart Program)

Smart Program:

- Added Menu Glitch for BDSP v1.1.3
- Added Box Duplication for BDSP
- Added Box Operation (release pokemon, bag items, duplicate items) for BDSP
- Added small delay in Reset Starter for BDSP to fix timing for German (reported by Herr Kira), also reduced false positive occurrence

v5.1.1

- Bumped version again since previous release didn't include updated .exe file

v5.1.2

- Bumped version for missing SmartCommands.xml update