The Hardware to the Software

Everything you need to know to make an iPad switch Accessible: *Part 2 Programming*

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Disclaimer….

- The following hardware items are just **options** I have tried and have found to work.
- There are probably additional Hardware options out there, I just haven’t tried them all yet.
- I don’t know if these will always work, iOS may have some update that ruins something with a few of these options, but they have worked for quite a while.
- In addition, I have not experimented with every switch accessible communication app, this presentation focus on typically inaccessible apps.

Part 1 was Hardware options (Deep dive)

1. Hook +
2. Blue 2 Switch
3. Don Johnston Switch Interface Pro with Lightning Camera Adapter
4. Hitch 2 Switch Interface with Lightning Multiport adapter.

Ablenet Hook+

Positives +	Limitations -
● Quick plug in and go ● Can plug in 4 switches for multi use function ● No battery needed and can charge iPad while using ● Can wake up a sleeping iPad ● Can also use a keyboard without conflict. ● Apple Approved!	● Only 4 programmable switches ● First 2 switches are programmed for step scanning and need to be reprogrammed if you want to use them for something else ● Unitasker $220 ● Will not work with USB-C

Official Ablenet video on Hook+

https://www.youtube.com/watch?v=3BHibfIKx5Q

Ablenet Hook +

- 1 switch will automatically configure to Automatic scanning
- 2 switches will automatically configure to step scanning.
  - Auto configuration https://www.youtube.com/watch?v=RbY_545yLs8
  - Uses Apple's built in scanning, not keystrokes
  - Need to check compatibility of your switch accessible app/communication device
- 3 and 4 switches can be programmed to your liking (see programming toward the end of the presentation).

Blue 2 switch

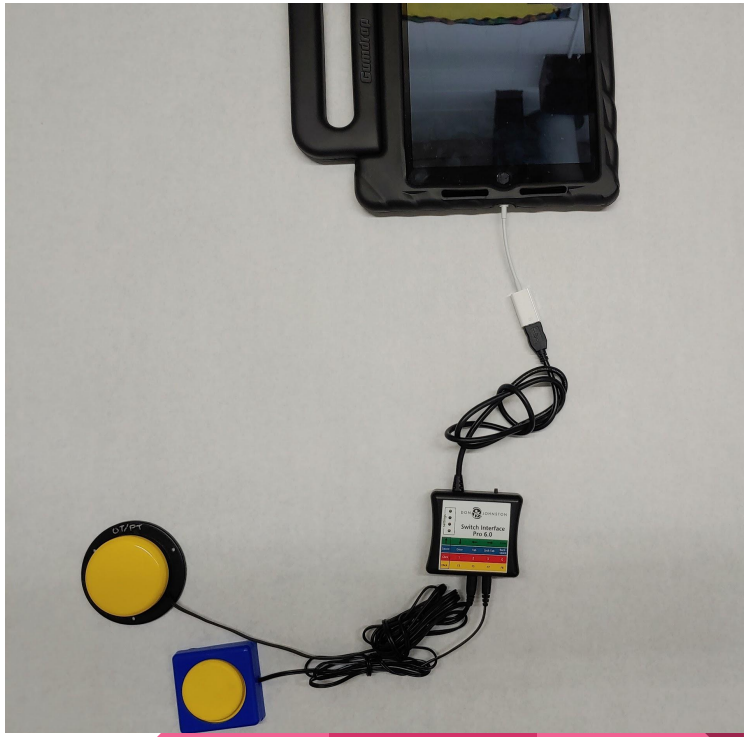
Positives +	Limitations -
● Wireless ● Can plug in 2 switches for alternate positioning ● 6 (up to 10) programmable switches for the iPad ● Will work with all iPads	● Requires battery to be charged ● Extra step to be sure device is connected to iPad ● Only 2 switch ports ● Unitasker $220

Official Ablenet video on Blue2

https://www.youtube.com/watch?v=_xeTaW2_vjs

Don Johnston Switch Interface w/ Lightning USB adapter

- Look around your schools for DJ's Switch Interface
- Unfortunately, they are no longer available for purchase.
- Purchase an Apple Camera adapter $29
  - Lightning to USB
  - https://www.apple.com/shop/product/MD821AM/A/lightning-to-usb-camera-adapter
  - You can try an off brand, it may work, I just haven't tried.



Don Johnston Switch Interface w/ Lightning USB adapter

Positives +	Limitations -
● Most cost effective option $29 ● You may already have it :) ● Allows you to plug in multiple switches and program many functions for each switch ● Flexibility for the student/parent, since the switch interface can also be used to access the computer at school/home… multitasker. ● 18 programmable switches!!! ● Will work with USB-C	● Can't charge iPad at same time ● Does take some programming and organization ● Not apple approved ● Only an option if you own the interface already

Hitch 2 Switch Interface w/ Lightning Multiport adapter

- Ablenet Hitch 2 $99
- Purchase adapter $20 ish
  - This is the one I purchased, but others may work too
  - https://www.amazon.com/RJ45-Ethernet-LAN-Network-Adapter/dp/B07PCL1GN4/ref=sr_1_6?dchild=1&keywords=Powered+RJ45+Ethernet+LAN+Wired+Network+Adapter&qid=1598899661&s=electronics&sr=1-6
  - Off Brand did work for me

Hitch 2 Switch Interface w/ Lightning Multiport adapter

Positives +	Limitations -
● Cost effective option $120 ish ● Allows you to plug in multiple switches and program many functions for each switch ● <u>Flexibility</u> for the student/parent, since the switch interface can also be used to access the computer at school/home… multitasker. ● You can obtain all of these tool ASAP ● Can charge the iPad at the same time ● Will work with USB-C	● Does take some programming and organization ● Not apple approved - No guarantee that it will work forever. ● Only 6 programmable switches w/option to program 5 additional

Things that haven’t worked for me

Valid options... I just don't own them.

1. Tapio - Viable option
   a. https://www.orin.com/access/tapio/
   b. 2 switch ports w/adapter
   c. Nice video on Switch Control Options
      i. https://youtu.be/lQrL3GjICf8
2. Pretorian Applicator https://www.pretorianuk.com/applicator
   a. https://www.talktometechnologies.com/products/applicator-bluetooth-switch-interface-for-idevices
   b. https://www.tobiidynavox.com/support-training/faq-from-salesforce/how-do-i-set-up-the-pretorian-applicator-bluetooth-switch-interface/
   c. 24 keyboard/media commands. Any combination of switch functions is possible.
   d. Press the Quick Media button for preconfigured access to play/pause, skip forward, skip back and Timed Play (10 seconds)
3. Stealth Switch?
   a. https://stealthswitch3.com/stealthswitch-3/
   b. Uses keyboard commands so should work
4. RJ Cooper
   a. Bluetooth Switch (space/enter). https://store.rjcooper.com/collections/switches/products/bluetooth-switch-button-upgrade
   b. ? Voice Over/Switch Control https://store.rjcooper.com/products/ipad-voiceover-switch-control-controller
5. ?Tecla ?
   a. Allows you to control everything via an app, designed for individuals with limited mobility
   b. Should give you total access to built in iOS switch controls.

Now to the PROGRAMMING !

1. 1 switch automatic scanning
2. 2 switch step scanning
3. Various “gestures” single movements that can be programmed
4. Custom Gestures - Any movement or shape you can think of
5. Bring it all together into Recipes.

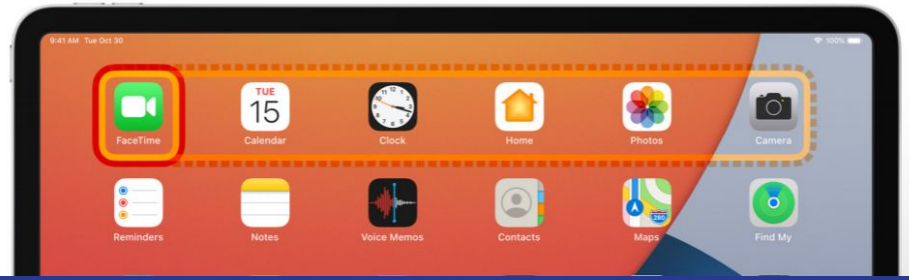
Standard Programming

https://www.ablenetinc.com/content/html/Downloads/Switch_Downloads/ios_14_switch_control_user_guide_english.pdf

AbleNet

iOS 14 & iPadOS 14 Accessibility

Switch Control - The Missing User Guide



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Topics covered in manuel

- Auto Scanning
  - PAUSE ON FIRST ITEM
  - LOOPS
  - LONG PRESS
  - GROUP ITEMS
  - LARGE CURSOR
  - CURSOR COLOR
  - EVEN SAVED GESTURES
  - ETC.
- Single Switch Step Scanning
- Two Switch Step Scanning

Are you looking for something more?

Cause effect…

Turning pages of ebooks…

What are you hoping to access?

What does it really look like? END GAME!

What else can we do? END GAME!

My Answer, Custom Gestures and Recipes

1. 1 switch automatic scanning
2. 2 switch step scanning
3. Various “gestures” single movements that can be programmed
4. Custom Gestures - Any movement or shape you can think of
5. Bring it all together into Recipes.

Recipes

A recipe is a recorded gesture or series of gestures (e.g. a macro) that can be repeatedly activated from a switch.

The user can start a recipe from the black pop-up menu that appears when scanning or a recipe can be manually started from this settings menu.

Recipes are great for repetitive tasks like turning the page in an ebook or a control for a game.

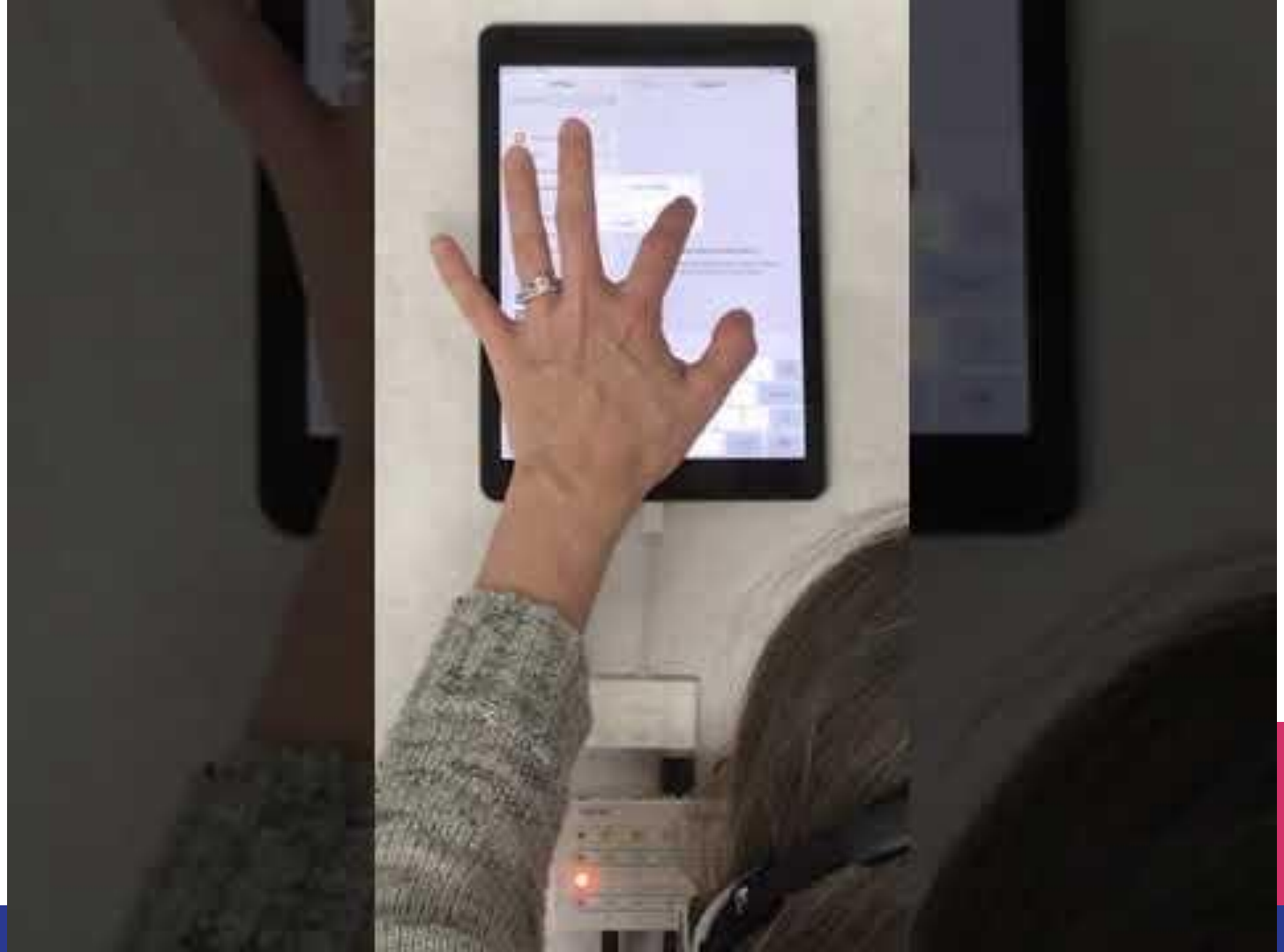
A recipe can be set to automatically turn off after a predetermined amount of time or turn off when a second switch is activated.

Let’s Jump Right In!

Peek behind the curtain and see the programming in the background.

I’ll show you quick example videos - you can watch again at your leisure

Written directions are provided after the video



Questions ?

1. WHY Swipe and Tap
   a. Swipe left/right allows our students to read books on epic (access any ebook)
   b. Tap middle of the screen works for cause effect programs
      i. Help Kidz Learn - One Switch
      ii. L3 Skills Add on for Unique Learning system
2. 3 Switches?
   a. Our students only use 1 or 2 at a time, program all to gether for ease of use. Adults will know which switch jack to use based upon the activity. Always on the ORANGE row, just moved the switch to different arrows
3. Time out
   a. We don’t want the recipe to turn off for our students -
   b. This is their only means of access

Add switches to the iPad - Teach the iPad

1. Accessibility
2. Switch Control (make sure it is off for now)
3. Click on Switches
4. Add New Switch
5. External
   a. Make sure your Hitch2 or DJ switch interface is on the correct level
   b. If the switch isn't working try unplugging and reattaching the adapter
6. Activate your Switch
   a. Name it based on the switch interface (not the color of the switch itself)
   b. Depending on the orientation of your ipad, you may have to unplug the interface to get a keyboard
7. Click TAP - Ignore everything else
8. - Repeat -
9. Back out of Switches and enter Recipes

Program Recipes

1. Create a new Recipe
    a. PLAN, PLAN, PLAN
    b. Click on Recipe
    c. Create New Recipe - You can use the defaults, but I always make my own - Find it easier :)
    d. Name - give a name that will describe the function of all the switches you are programming together
        i. iPad will only launch 1 recipe, make it a good one
        ii. Place multiple actions into 1 recipe even if you will only use 1 or 2 at a time
            1. Swipe left, Swipe right, Tap Middle of Screen
            2. Custom gesture
    e. Timeout off
    f. Back out of Recipe
    g. Click Launch Recipe
    h. Click on your Recipe

Last step! Accessibility Shortcut

1. Triple Click - Fastest way to Start and Stop Switch control
   a. Accessibility - scroll to the bottom click Switch Control
   b. I strongly recommend Guided Access - must turn on for first time in guided access menu
2. FYI, triple click on new iPads (w/o home button) is actually the **Sleep/Wake button**

Programming is complete, Let’s Get This Party Started!

ADVANCED programming!!!

How many switches can we add ?????

What can we really make an iPad do ?????

OH…. The Possibilities! Advanced Programming

Actions/Gestures

Hook+	4 - able to change the auto configuration to what you want
Blue2	Default 6 up to 10 w/programming
Don Johnston Switch Interface	18 programmable switches !!!
Hitch2	6 up to 11 w/programming

Blue2 4th gen - Default has 6 programmable switches with potential for 10

Use Modes

Blue2 sends keystrokes to the app or software when a switch is activated. The keystrokes for each mode are listed on the back of Blue2.

- Mode 1: Space, Enter
- Mode 2: 1, 3
- Mode 3: ~1, ~3
- Mode 4: Left mouse click, right mouse click
- Modes 5 and 6: Program 1 to 4 keystrokes of your choice

Programming Modes 5 and 6

You can program one to four keystrokes of your choice with modes 5 and 6 on Blue2.

1. Turn Blue2 on
2. Plug a keyboard into Blue2's USB programming jack
3. Move Blue2's learn switch to on by moving it left
4. Select mode 5 or 6 on Blue2
5. Activate Switch 1 to start recording mode. The S1 light will blink while in recording mode.
6. Activate up to four keystrokes that you would like recorded to Switch 1 on the USB keyboard.
7. Activate Switch 1 to stop recording mode
8. Activate Switch 2 to start recording mode. The S2 light will blink while in recording mode.
9. Activate up to four keystrokes that you would like recorded to Switch 2 on the USB keyboard.
10. Activate Switch 2 to stop recording mode
11. Move Blue2's learn switch to off by moving it to the right
12. Disconnect the keyboard from Blue2
13. Select your new mode to use

Hook+

The automatically configured switches can be deleted and all 4 switches can be added manually.

DonJohnston

Everything except the RED and Yellow CLICK can be turned into a switch

18 options

Hitch 2

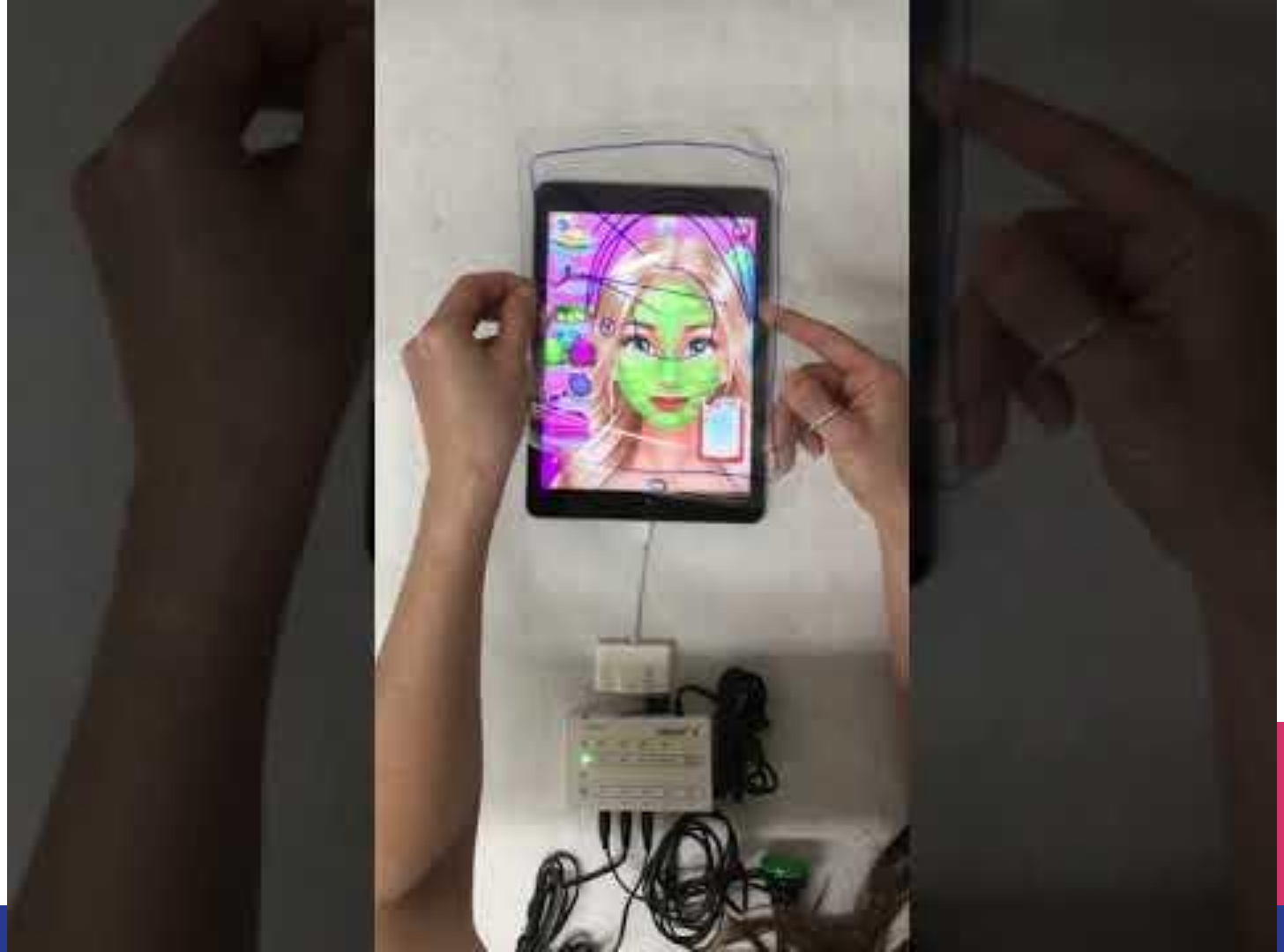
1. Space
2. Enter
3. Up
4. Down
5. Left
6. Right
7. Programs 1-5

Advanced Recipes - Custom Gestures

1. **PLAN, PLAN, PLAN**
2. Think about you want to accomplish - Choose the right app/activity
   a. Test an app on your own, look for apps with 2-6 different movements.
   b. Utilize eye gaze or communication device for choices along with the switch interactions on the iPad (apps with more than 6 movements)
   c. FYI - movements can be combined into one custom gestures
   d. Student doesn't need to have every step switch accessible (partner up)
3. For your own sanity, **YOU NEED** to write a script/ directions for complex games.
4. Create overlays of the movements for the game
5. Determine how many movements you need.

Add switches to the iPad - JUST AS BEFORE

1. Accessibility
2. Switch Control (make sure it is off for now)
3. Click on Switches
4. Add New Switch
5. External
   a. Make sure your Hitch2 or DJ switch interface is on the right level
   b. If the switch isn't working try unplugging the adapter
6. Activate your Switch
   a. Name it based on the switch interface (not the color of the switch itself)
   b. Depending on the orientation of your ipad, you may have to unplug the interface to get a keyboard
7. Click TAP - Ignore everything else
8. - Repeat -
9. Back out of Switches and enter Recipes



Advanced Recipes Continued.

1. Once you have done the prep work
2. Click on Recipe
3. Create New Recipe
4. Name - name it for the game
5. Click Assign a Switch
    a. Pick a switch you have already added
    b. Select Custom Gesture
    c. Place your overlay on the iPad
    d. Trace the overlay
    e. WRITE DOWN WHAT YOU ARE DOING
    f. You will want a script/notes
    g. Repeat as much as you want….
6. Timeout off
7. Back out of Recipe
8. Click Launch Recipe
9. Click on your Recipe

Programming the iPad

Things to remember!

- Switch control must be turned off when you are programming switches
- Name switches based upon the Switch Interface, not the color of the switch.
- If the switch isn't registering, unplug the adapter and plug in again.
- You can only launch 1 recipe at a time, so make sure you add all your "switches" to the recipe that you will be using.
- Turn on Accessibility Shortcut for Switch Control (and probably Guided access too)
- Once iPad falls asleep you may need to turn switch control off and on again(triple click) if the iPad starts automatic scanning

*Long Press - When turned on you can assign another (2nd) action to a switch that is activated for longer than the specified duration.

OH… the Possibilities

Spin art

Books

Toca Boca apps

Social interaction and Play

Program a switch to “Volume UP” to take pictures

Already Accessible Apps

1. Compelation of various Switch Accessible apps https://enablingdevices.com/wp-content/uploads/2020/06/Switch-Accessible-Apps.pdf
2. Marblesoft
   a. Sights & Sounds, Switch Accessible puzzles, Switch Kids, Potato Face
3. Judy Lynn Software - http://www.judylynn.com/ipad/
4. LIFEtool Solutions https://apps.apple.com/in/developer/lifetool-solutions-gmbh/id618103816
5. Inclusive TLC https://www.inclusivetlc.com/ipad/apps
   a. Big Bang Patterns/Pictures
   b. Space Shooter, Little Lost Penguin, Train Tracker, Racing Cars, Treasure Island, SHHH!, etc.
6. HelpKidzLearn - Many!
7. L3 Skills https://www.n2y.com/l3-skills/
8. RJ Cooper https://apps.apple.com/us/developer/rj-cooper-associates-inc/id412790299#see-all/i-pad-apps
9. Communication Devices
   a. GoTalk Now
   b. TouchChat
   c. LAMP Words for Life
   d. Etc.

FYI - My Favorite Mount

Modular Hose - Lock Line - MOGO mounting

Quality, Service, Great Price $

https://www.modularhose.com/assistive-technology

MODULARHOSE

MOGO MOUNTS

TABLET & DEVICE SOLUTIONS

SWITCH SOLUTIONS

Give it a WHIRL, Jump right in, and make it FUN!

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