

The Accessible Input Device

User Manual



This user manual is intended for end users and therapists tasked with helping users regain the ability to use technology.

This **Accessible Input Device** is a comprehensive solution intended to allow a user to control a computer, tablet, or phone using alternative means.

Users who have difficulty operating “smart” devices due to physical limitations can benefit from this solution, which helps them to regain their autonomy using accessible technology. The Accessible Input Device is intended to be operated by a user pressing on the device with their feet or other extremities.

In addition, the Accessible Input Device can be easily configured for an end user's specific needs, either by the end user or by someone tasked with helping the user make the best use of the device.

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1 Quick start

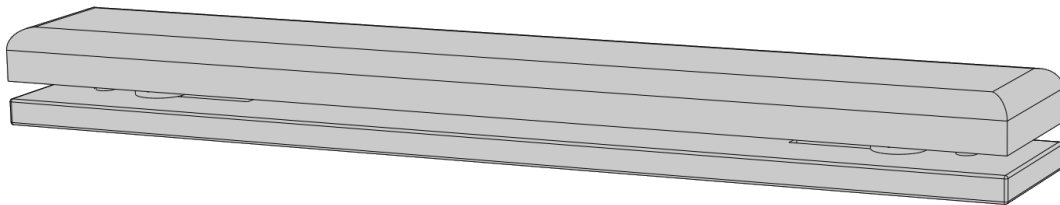
The Accessible Input Device can connect to a standard personal computer, tablet PC, or smartphone to control the device based on user inputs.

1.1 Device placement

Place the AID at a comfortable position at the user's feet. If the user is unable to sit upright, the device may be mounted to the end of a bed using a mounting bracket (provided separately).

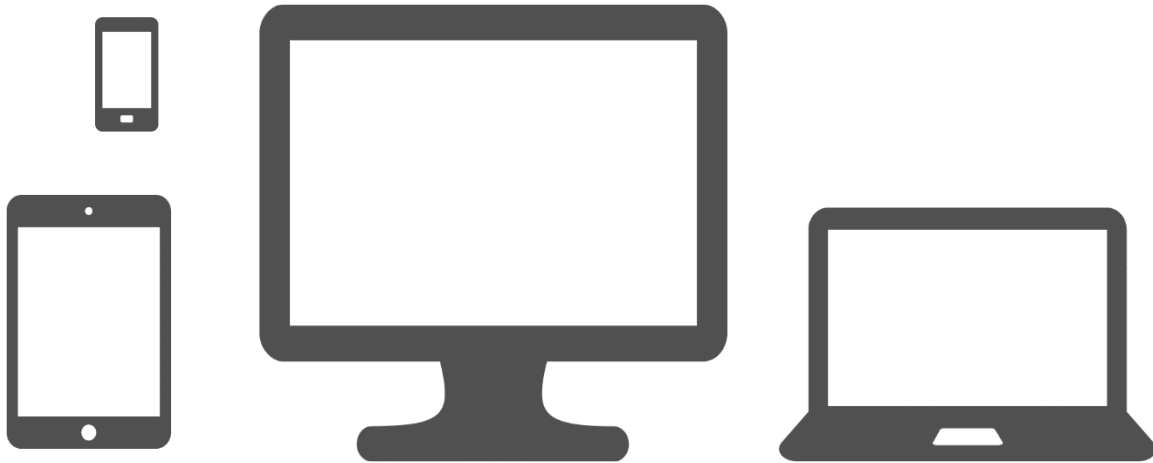
When placed at the feet, the device should rest on a flat surface clear of obstructions and be placed such that it can be comfortably operated with the heels resting about 4" in front of the device.

For best ergonomic function, the user's legs should rest at a slight angle away from the device.



1.2 Connecting the device

The device may be connected via Universal Serial Bus or Bluetooth. Please refer to section 4.1 for specifics regarding USB, and section 4.2 for details about Bluetooth capability.



1.2.1 USB connection

The micro USB port, located at the back of the device, is used for both charging the device (when operated in Bluetooth mode), as well as wired operation.

After connecting to the target device, the Accessible Input Device appears as a standard USB keyboard.

1.2.2 Bluetooth connection

When operated on battery, the device will go into a low-power sleep mode after 10 minutes of inactivity. To wake the device, press and hold any side of the device for up to 8 seconds. Once the device wakes from sleep, the blue status light will turn on for two seconds and the device will emit two short beeps.

The device must first be paired by initiating the Bluetooth pairing mode from the management interface. See section 4.2 for more details.

1.3 Recognizable inputs

The device has a range of recognizable inputs based on the pressure, location, and duration of contact with the device. Each recognizable input is used to differentiate the type of action that the user is providing to the Accessible Input Device. Each input is then translated to an action on the attached device, which is set programmatically in the configuration settings.

Left side	Center	Right side
Soft tap	Soft tap	Soft tap
Hard tap	Hard tap	Hard tap
Press-and-hold	Press-and-hold	Press-and-hold

2 Typical usage

The Accessible Input Device is designed to provide alternative means to using a computer, tablet, or smartphone. It may optionally be configured with the help of an occupational therapist or other practitioner to assist in using the system to its fullest.



Once connected to an attached device (as described in section 1.2), the device provides a way to provide meaningful inputs into a computer system to perform many activities typically entered using a keyboard or mouse.

This device may be used in conjunction with or as a compliment to a keyboard or mouse, depending on desired use case.

During configuration, a therapist may guide the user through typical usage of the device, which consists of providing touch input to perform actions on an attached device.

Each detectable input may dynamically be set based on desired function. Basic pre-programmed sets of inputs to perform common tasks are laid out in templates (as described in section 3.5) on the devices companion site. These templates can be enhanced with the help of an occupational therapist to deliver the maximum benefit to the user.

3 Configuring the device

Configuration is performed through a standard web-based management page, accessible via an 802.11b Wi-Fi access point. To conserve battery, the configuration interface is only available while the device is powered by USB. This setting can be changed under **Advanced Settings** to power off after the battery falls below a preset percentage.

3.1 Connecting to the Wi-Fi management network

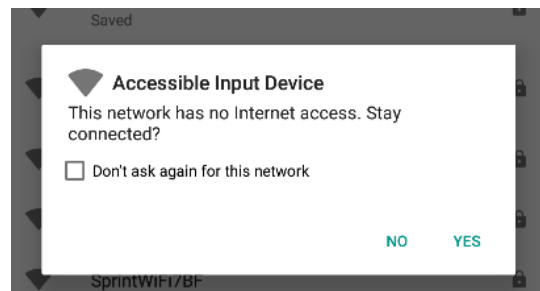
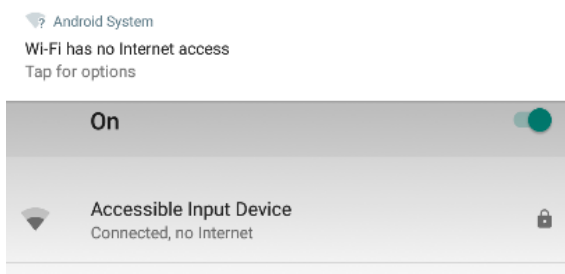
To access the management page, use a personal computer, tablet, or smartphone to connect to the following wireless network:

SSID: Accessible Input Device

Passphrase: See device label

Connecting devices will be configured to allow internet access the internet if it is available through cellular data.

△ *On Android devices, a "no internet" warning (similar to below) may appear. Click "Yes" to stay connected.*



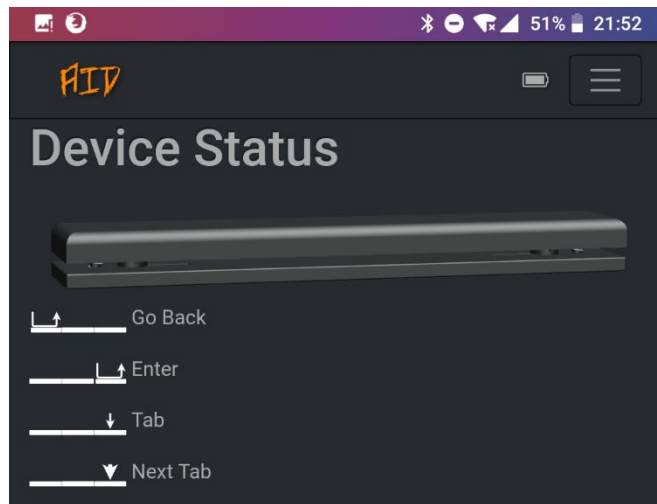
3.2 Accessing the management page

Once connected to the management WiFi access point, navigate to the following URL in a web browser:

<http://aid.local> or <http://172.31.11.1>

3.3 Status screen

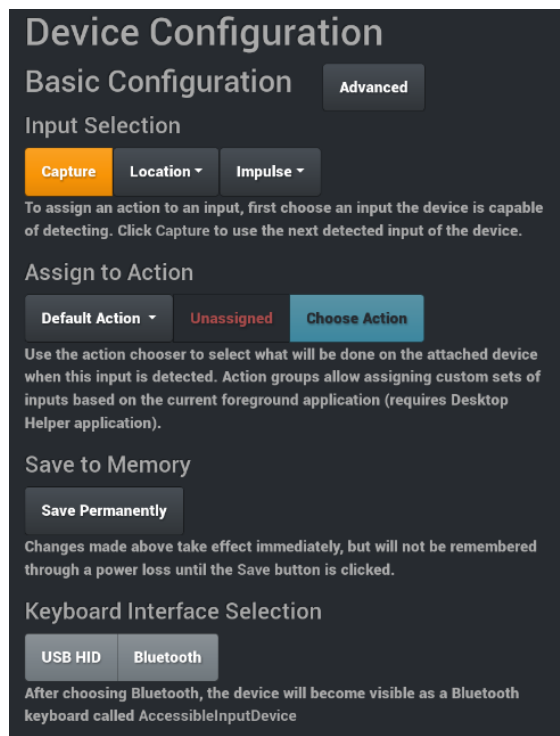
The Status screen shows the user the actions taking place on the device as they are entered. In addition, a command history appears below the picture of the device allowing the user to see past inputs. The status screen is also used to check the health of the battery.



3.4 Configuration screen

The configuration screen is used for all aspects of configuration and template customization. This page allows an input type to be chosen, and then an action to be assigned to that input.

In the **Input Selection** section of the configuration screen, a location and input type may be chosen to assign an action to. Click the **Capture** button to use the next detected input from the device as the input to assign an action to. While the device is waiting for an input, a progress spinner is shown.

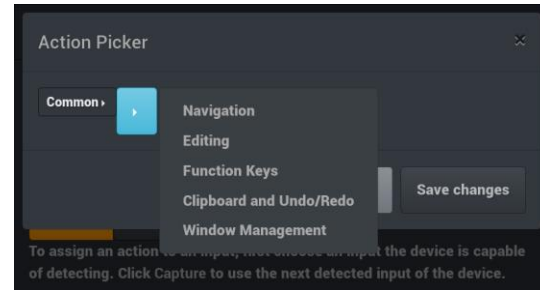


After an input has been selected, the Choose Action button will be enabled, and any current action assignment is listed. If no action has been assigned yet, the current action is shown in red as **Unassigned**.

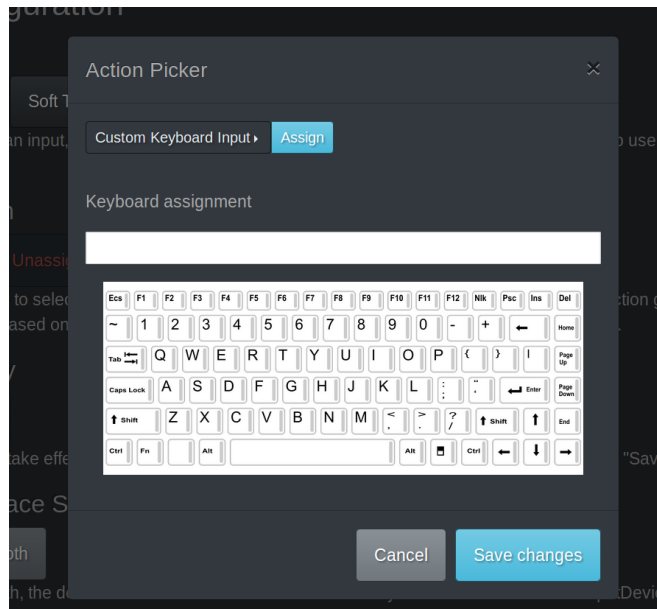
The Accessible Input Device allows creating activity-based configuration sets that are switched automatically based on the current foreground application. This feature requires the **Desktop Helper** companion application to be running on the attached computer.

3.4.1 Action Picker

Once **Choose Action** is selected, a modal form is shown containing a selection of predefined actions, organized by category. Navigate this menu to find the desired action to assign. Once a valid action has been chosen, it will be possible to save the changes.



It is also possible to enter a custom sequence of keys instead of a predefined item. By choosing Custom Keyboard Input, a virtual keyboard is displayed. A user may enter keystrokes to type that formulate the action, and they will be sent to the attached device in a succession of key presses.



△ The Accessible Input Device uses certain characters to represent modifier and special keys, which the virtual keyboard correctly maps. Refer to the technical reference for more information.

The chosen action is immediately available on the device but will not be remembered through a power loss until **Save Permanently** is clicked.

3.4.2 Device interface selection

The desired output interface may be chosen by switching the **USB HID/Bluetooth** toggle to the desired mode of operation. Activation of **USB HID** mode is indicated by a red

light and single chirp, and activation of **Bluetooth** mode is indicated by a blue light and two chirps.

3.5 Templates screen

The templates screen provides the user with predefined sets of keyboard commands that are typically used for a specific computer application. Selecting a template changes the device configurations to those provided in the template. Each template describes the computer application it is used for and what command each input is set to. This can be used as a quick and easy starting point for configuration when switching between different computer applications.

3.6 User guide screen

The user guide screen contains this manual available for download. The user manual includes detailed instructions on how to set up and operate the device.

A **Guided Tour** mode may be initiated from the screen as well. This feature brings the user on a tour of the management interface going through each tab in detail. The tour is annotated with highlights and pop-up contextual cues describing the different aspects of the interface. It is suggested that the end user watch the tour to best understand the companion site and be able to use the device to its fullest.

4 Available interface modes

4.1 USB

The USB interface is compatible with USB 1.1 and higher. Using the USB interface with an Android tablet or smartphone may require a USB On-the-Go (OTG) cable. Check with the manufacturer documentation for information regarding USB OTG support.

△ Connecting the device to an iPhone or iPad via USB is currently unsupported.

4.2 Bluetooth

To set up the Bluetooth capability go to the configuration page on the management interface and select Bluetooth under Keyboard Interface Selection. After choosing Bluetooth, the device will become visible as a Bluetooth keyboard called "AccessibleInputDevice".

4.2.1 Operating on battery

While the device is operated on battery, the Wi-Fi configuration is unavailable by default to conserve power. The device will last approximately 1 month on a charge, when used daily.

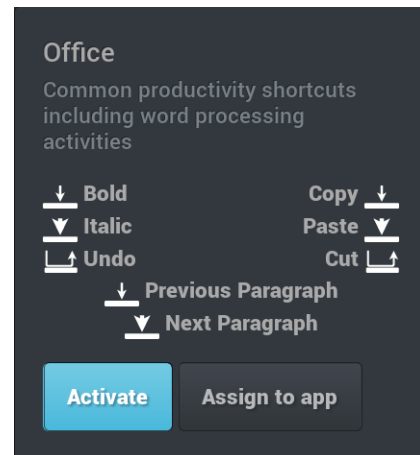
When the battery level has fallen below 20%, the device will flash red every minute and emit a triple-beep every 16 minutes to indicate a low battery state. It is suggested to charge the device at this level.

△ *The “Battery Saver” value may be set to less than 100 on the “Advanced Configuration” page to power down the management module based on battery level.*

5 Preconfigured templates

On the **Templates** screen, a variety of task-based collections of actions are provided. Each preset appears as a card containing a list of the actions contained within the profile. Clicking **Activate** on any tile will immediately reconfigure the device to perform the listed set of functions.

If the companion **Desktop Helper** application is installed, the preset may be assigned to one of the currently open desktop applications. This will cause the profile to activate whenever the chosen application is active.



In each tile, icons indicate the location and type of input. A **soft tap** is indicated by a light-weight arrow, a **hard tap** by a heavyweight arrow, and a **press-and-hold** by a directional roundabout arrow.

After activating a template, the **Configuration** page is displayed so that the template may be further configured.

△ *Some templates may have actions that require further configuration. These actions are indicated by an asterisk (*).*

6 Troubleshooting

If having trouble using or setting up the device, follow the instructions below to troubleshoot the issue.

Device does not wake from sleep after pressing for 8 seconds

- Check that the batteries are charged by plugging into USB. The battery level can be confirmed through the management page

Computer is unable to pair with the Bluetooth device

- Make sure the Accessible Input Device is close enough to the paired device
- Ensure Bluetooth is chosen in the management interface's **Configuration** page
- Ensure Bluetooth is enabled on the device to be paired with

Nothing happens when pressing an input

- Recalibrate device on the configuration page
- Ensure that a command is assigned to the entered input
- Check the status page to ensure that an input is being detected

Cannot see Wi-Fi access point

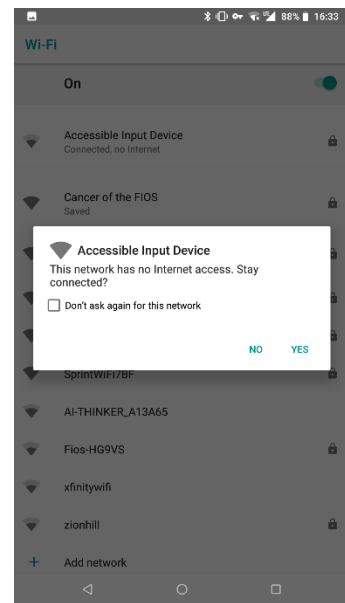
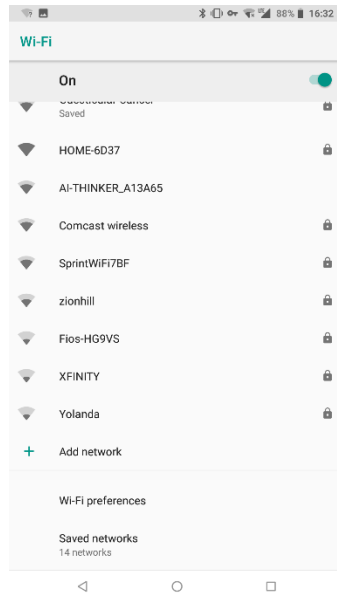
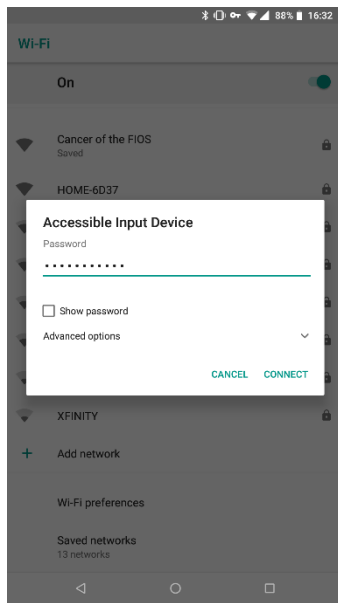
- Check that the unit is powered by USB
- Make sure Wi-Fi services are enabled on the host computer

7 Supplemental information

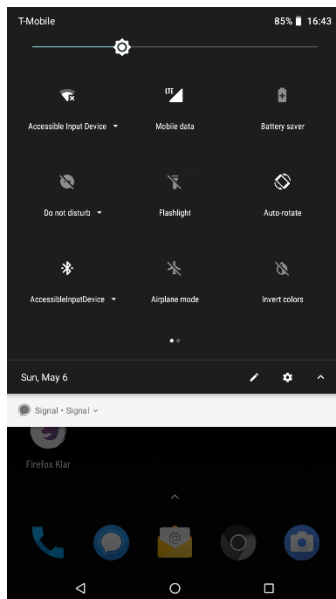
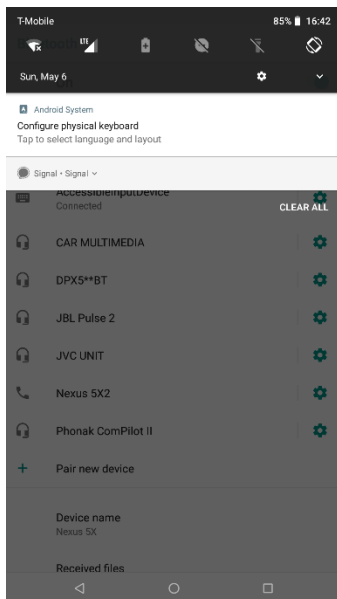
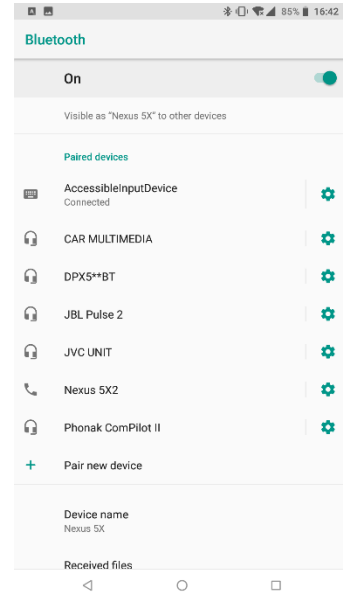
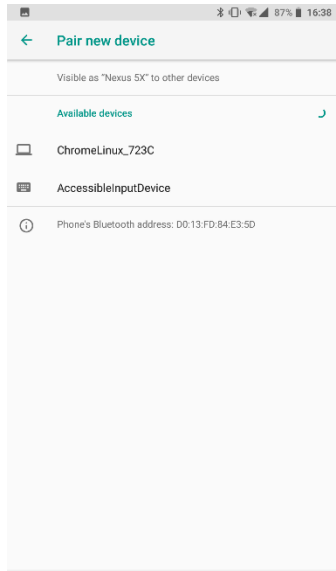
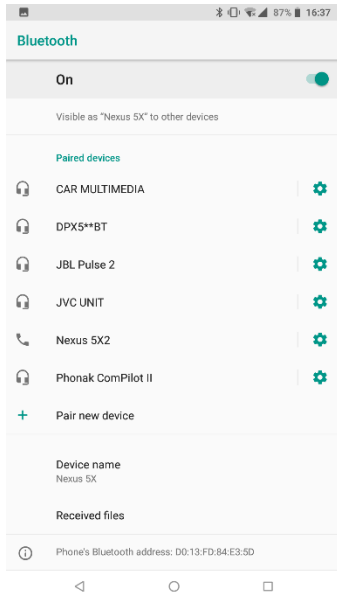
7.1 Operating system specific instructions

7.1.1 Android

Connecting to Wi-Fi



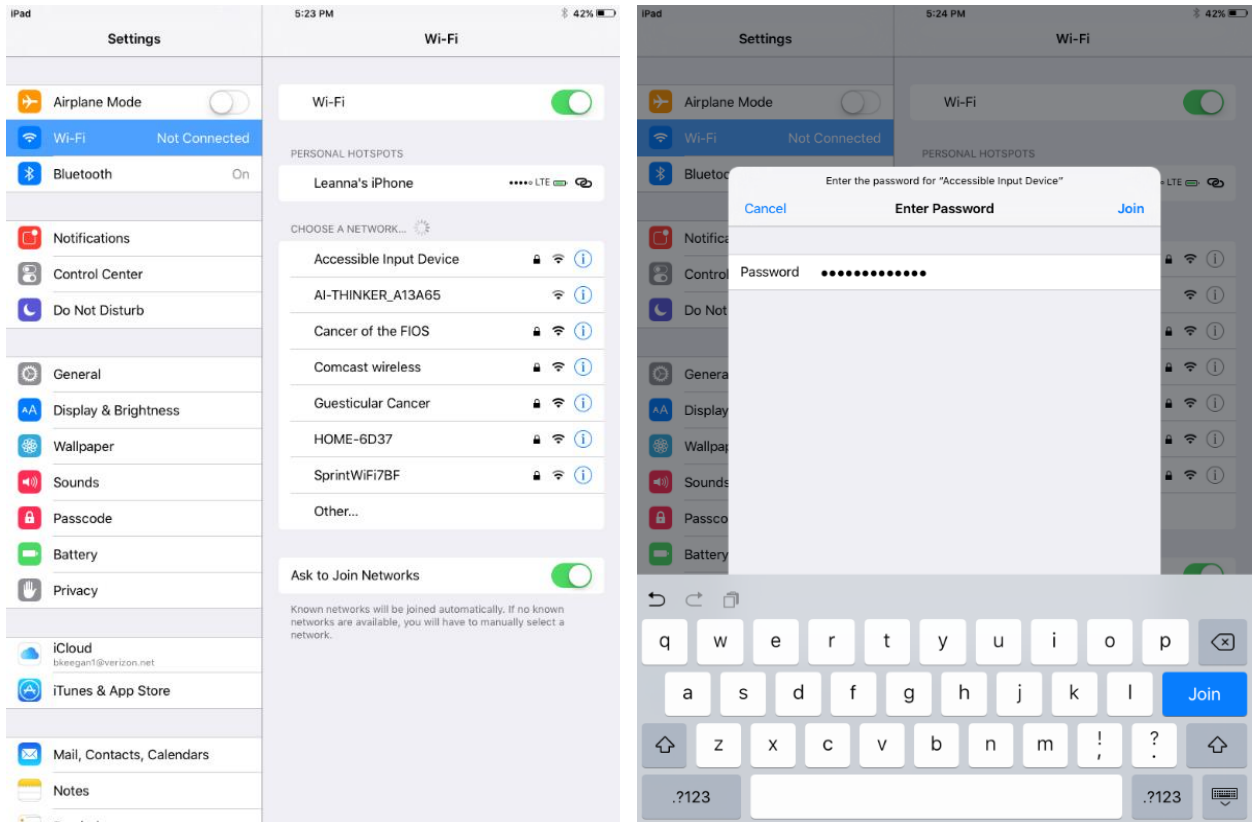
Connecting to Bluetooth



7.1.2 Apple iOS

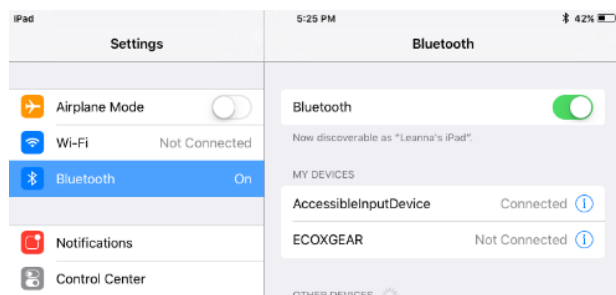
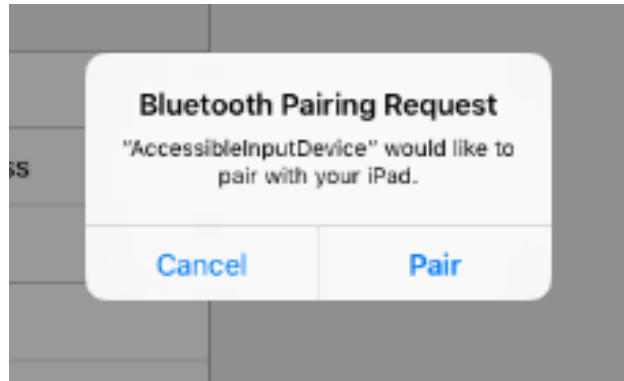
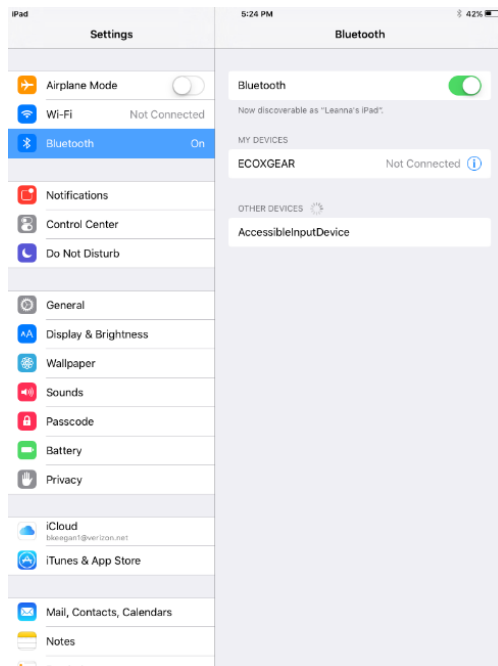
Connecting to Wi-Fi

Connect the Apple iOS device to the “Accessible Input Device” Wi-Fi by selecting it from the list of networks under “Wi-Fi” in Settings. Enter the password provided in section X to connect to the Wi-Fi.



Connecting to Bluetooth

Connect to the "Accessible Input Device" from the list of networks in the Bluetooth section in Settings. When asked if you would like to pair with the device select "Pair."



7.2 Available templates

Configuration Templates

Legend

- ↓ Soft press
- ▼ Hard press
- ↵ Press-and-hold
- ⇓ Double tap

[Guide me](#)

Board Games

Arrow-key based games like Chess, Solitaire, and Minesweeper

↓ Move left	Move right ↓
▼ Move down	Move up ▼
↵ Cancel	Select ↵

[Activate](#) [Assign to app](#)

Office

Common productivity shortcuts including word processing activities

↓ Bold	Copy ↓
▼ Italic	Paste ▼
↵ Undo	Cut ↵
↓ Previous Paragraph	
▼ Next Paragraph	

[Activate](#) [Assign to app](#)

Web Browsing

Complete set of actions for navigating the internet

↓ Page down	Next link ↓
▼ Page up	Next tab ▼
↵ Back a page	Follow link ↵
↵ Random wikipedia page in new tab	

[Activate](#) [Assign to app](#)

VIM

The programmer's companion

↓ Previous window	Next window ↓
▼ Previous screen	Next screen ▼
↵ Discard quit	Save quit ↵
↓ Next function	
▼ Matching bracket	

[Activate](#) [Assign to app](#)