Brandt LeadHand Mobile App
Product User Guide

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Scope

This user guide outlines the interaction between the Brandt LeadHand app and the Brandt Electric Swing Mover Controller (2018 and later). The LeadHand app is available for both iOS and Android devices, and is optimized for phone devices.

Download on the App Store

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Opening the App

When the Brandt LeadHand App is opened/started on the mobile device, it will first show a splash screen for about 5 seconds while the app loads, then it will go to the main screen (as shown below).

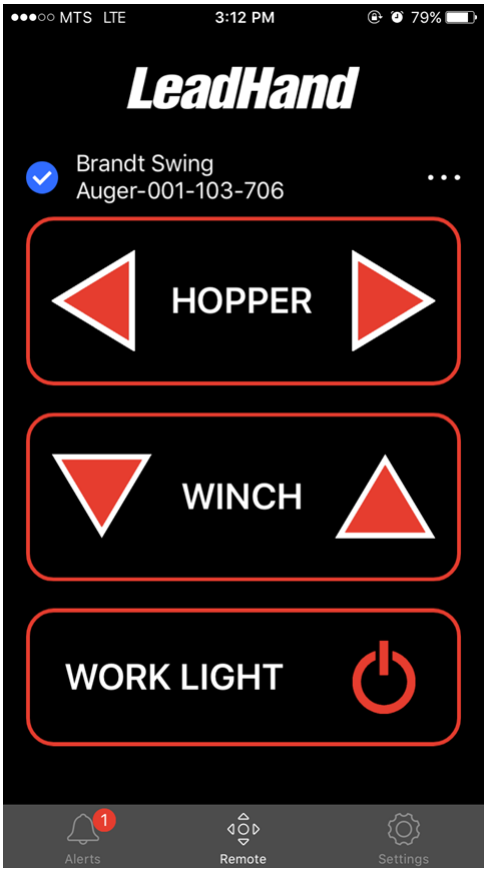


Figure 1 Main Controls Screen

If a Wi-Fi connection is already established by the mobile phone, then the device can be used for auger control/interaction, otherwise a connection will need to be established as defined in Section 3, Connecting to the Auger.

Connecting to the Auger

To connect to an auger controller the first time, the user follows the following steps.

1. The user opens the app to the main screen, as shown below.

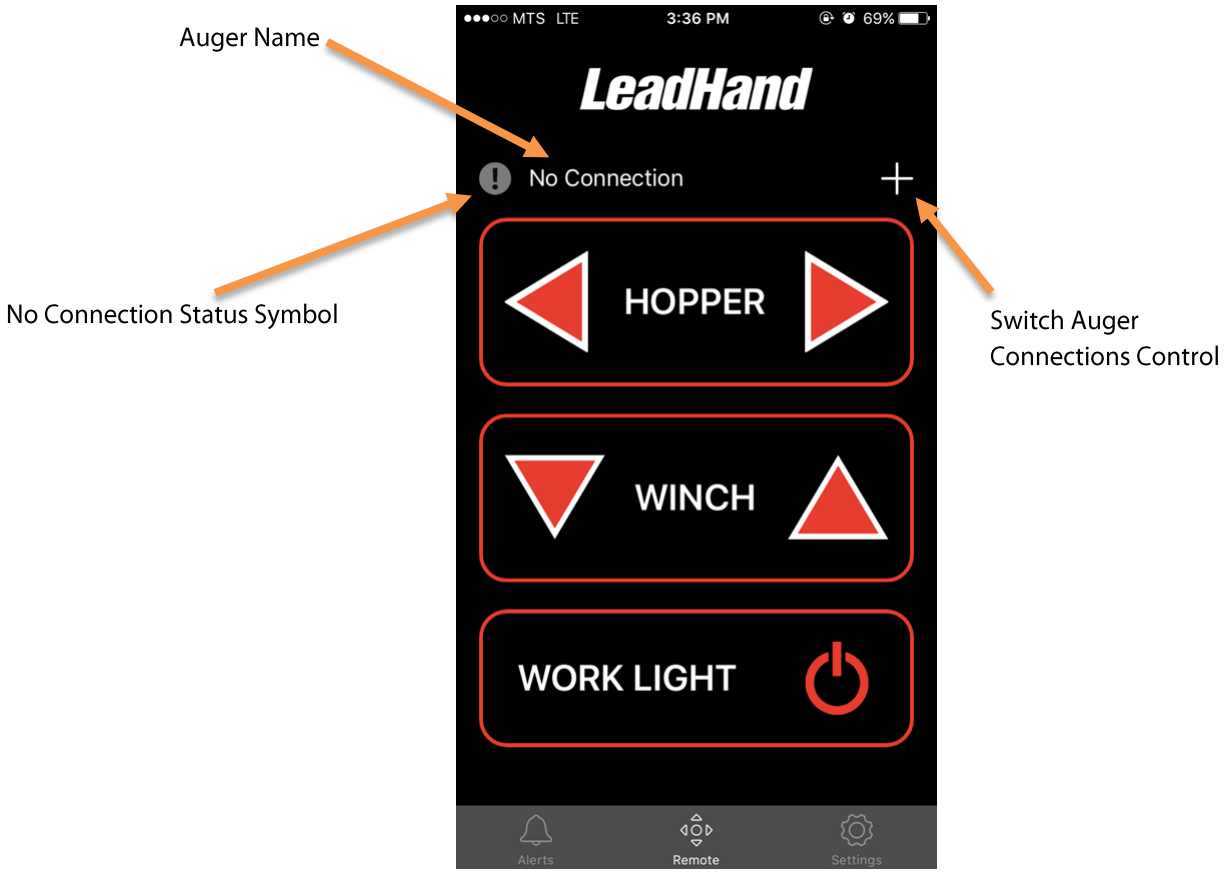


Figure 2 App not connected to auger

2. With the app opened to the main screen, the text for the auger name says “No Connection”, and the connection status symbol will indicate there is no connection ( ).
3. The user can press the switch auger connections control to initiate a connection ( ). This brings the user to the Wi-Fi connections screen (common OS screen for establishing a Wi-Fi connection, iOS Wi-Fi screen shown below).

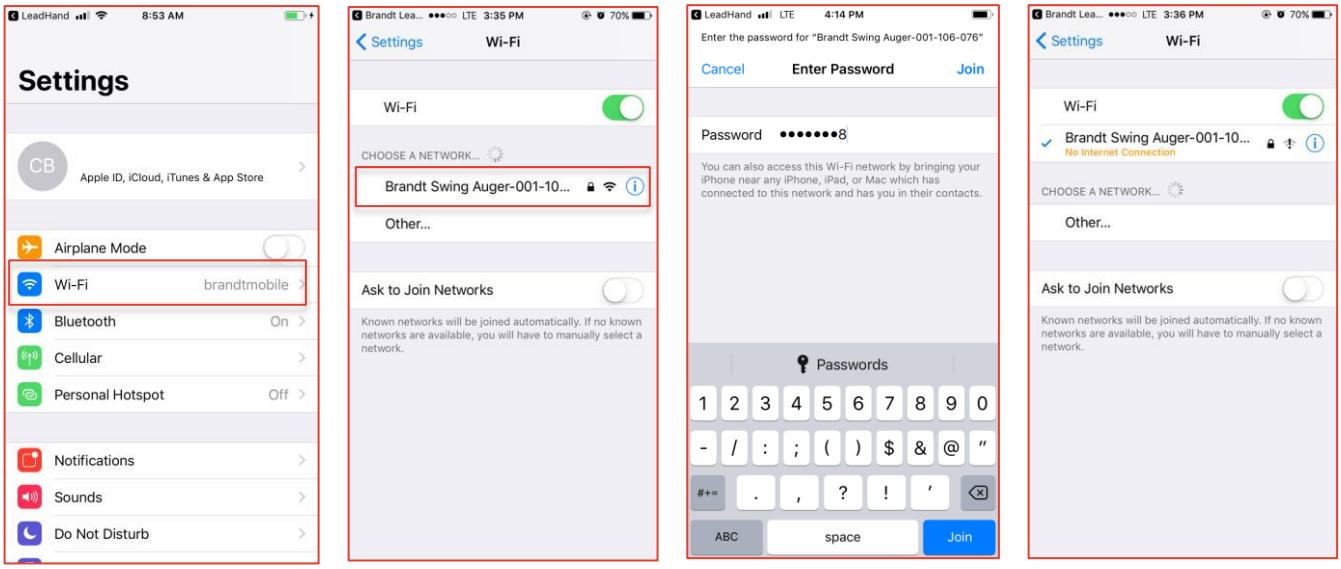


Figure 3 Wi-Fi iOS Connection Screens (process similar on Android)

4. If the auger controller is within Wi-Fi range and is powered, then it should show up in the list of detected Wi-Fi access points.
5. The user selects the SSID of the auger that they want to connect to, and enters the password. This should establish the connection.

NOTE: The default network name is "Brandt Swing Auger - xxx-xxx-xxx", where xxx-xxx-xxx is the unique serial number for the auger controller. In the event that there are two powered augers within range of your mobile device, check the auger serial # or customized name to ensure you are connected to the correct auger.

The default password for each auger controller is "12345678".

Upon Successful Connection

- Upon successful connection to the auger controller, the auger controller flashes the beacon light and beeps the audible alarm twice, to signify that a new connection was established.
- The user navigates back to the Brandt App.
- The auger name displayed at the top of the top of the main screen should now contain the SSID of the auger controller that is connected.
- The connection status symbol will now show there is now an active connection to the auger controller (☑).

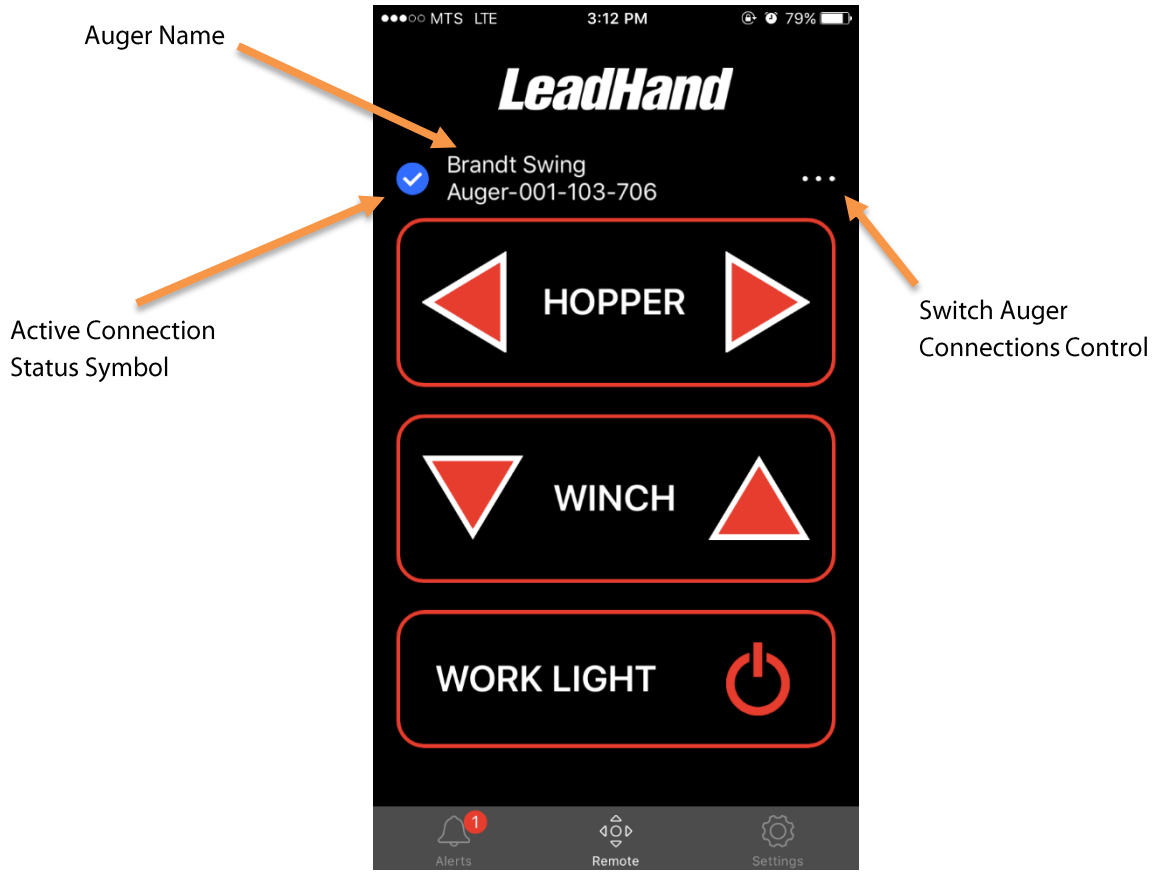


Figure 4 App connected to auger

Upon Unsuccessful Connection

Only a single mobile device is allowed to be connected to an auger controller at any given time, if there is already a mobile device connected to the auger controller, then the connection will be unsuccessful. In this case:

- The user navigates back to the Brandt App.
- An alarm will be registered to notify the operator that there is already a connection to the auger controller (see Alarm Notification and Management user story for details on notification).
- The auger name displayed at the top of the top will display “Connection Unavailable”.
- The connection status symbol will show there is not an active connection to the auger controller ( ).

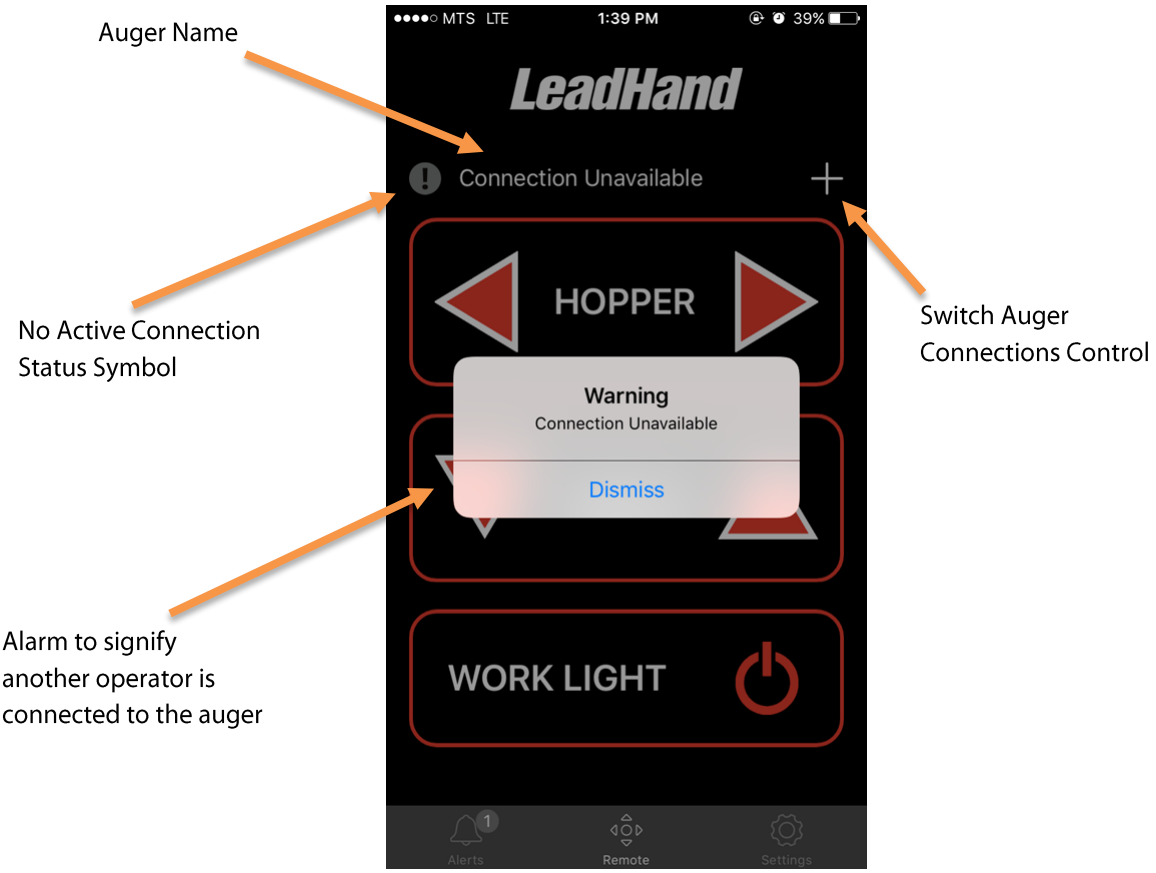
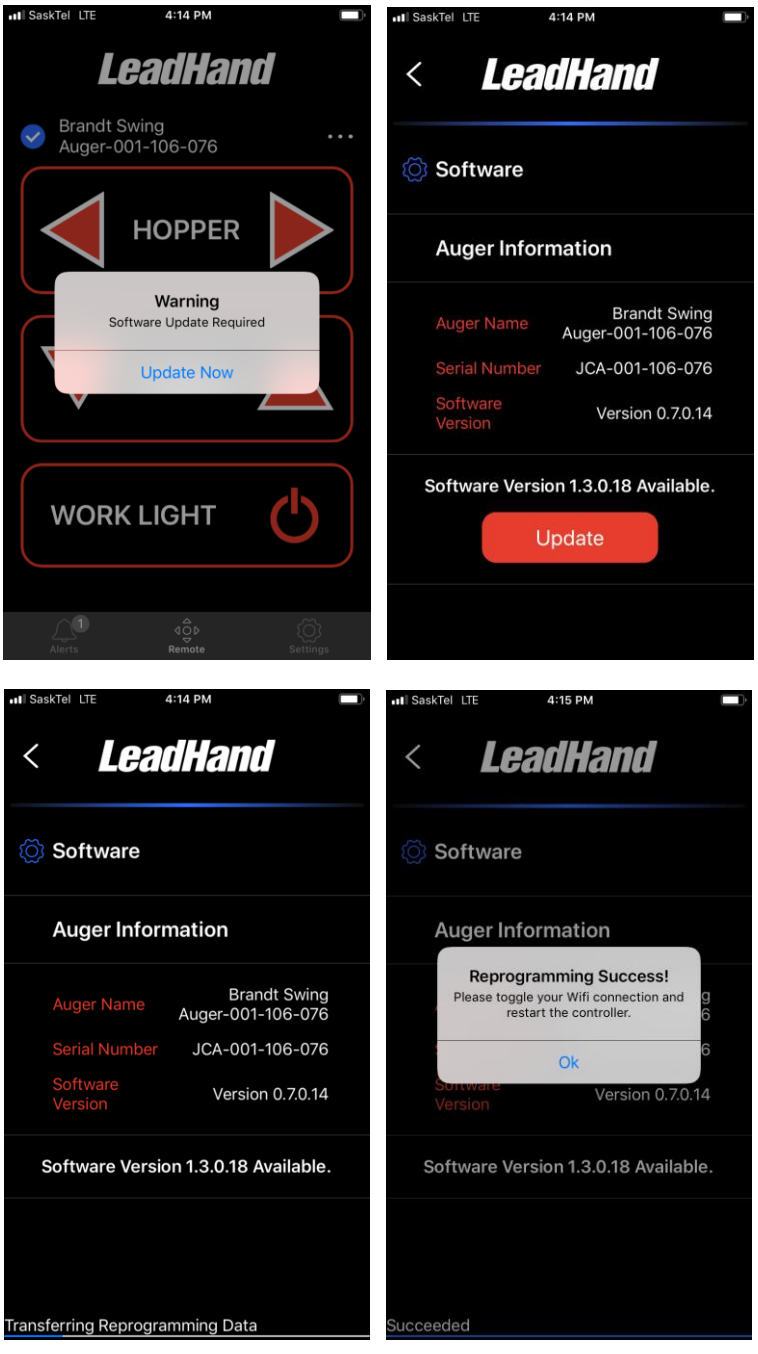


Figure 5 Connected to auger, but not active connection

Updating the Controller Software

Once you have established a wi-fi connection to an auger for the first time, a prompt is displayed to update the mover controller software. This enables the app remote control capabilities. Follow the in-app prompts to compete this process. Do not close the app or disconnect the controller from power while performing this update.



NOTE: Now that the controller software is up to date, you need to restart the auger controller. Disconnect the power supply to the auger and reconnect. Relaunch the app to reconnect the auger.

Controlling the Auger

When the user has connected a mobile device to the app, the mobile app can be used to control each of the swing, winch, and worklight from the main screen in the app (shown below).

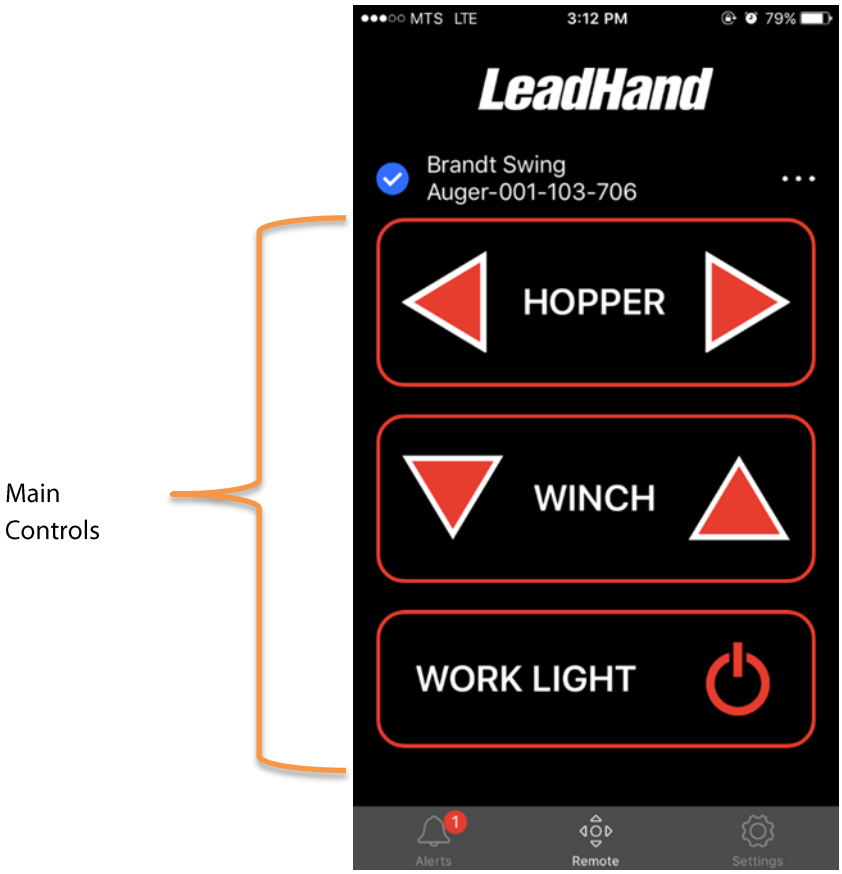


Figure 6 Main Controls Screen

Swing Auger Movement

The swing auger can be moved left or right by the pressing the directional arrow controls on the main screen. During the swing auger movement, the Hopper control will appear activated (turns light grey). No movement will occur if both directions are pressed at one time. The swing auger cannot be moved at the same time as the winch. The swing auger movement will stop if:

- The swing movement controls are let go
- The connection between the mobile device and the auger control is dropped
- The app closes
- The app moves to the background
- The app is navigated away from the main page
- A contrary command (swing auger commanded in a different direction) is received from the handheld remote or the manual controls

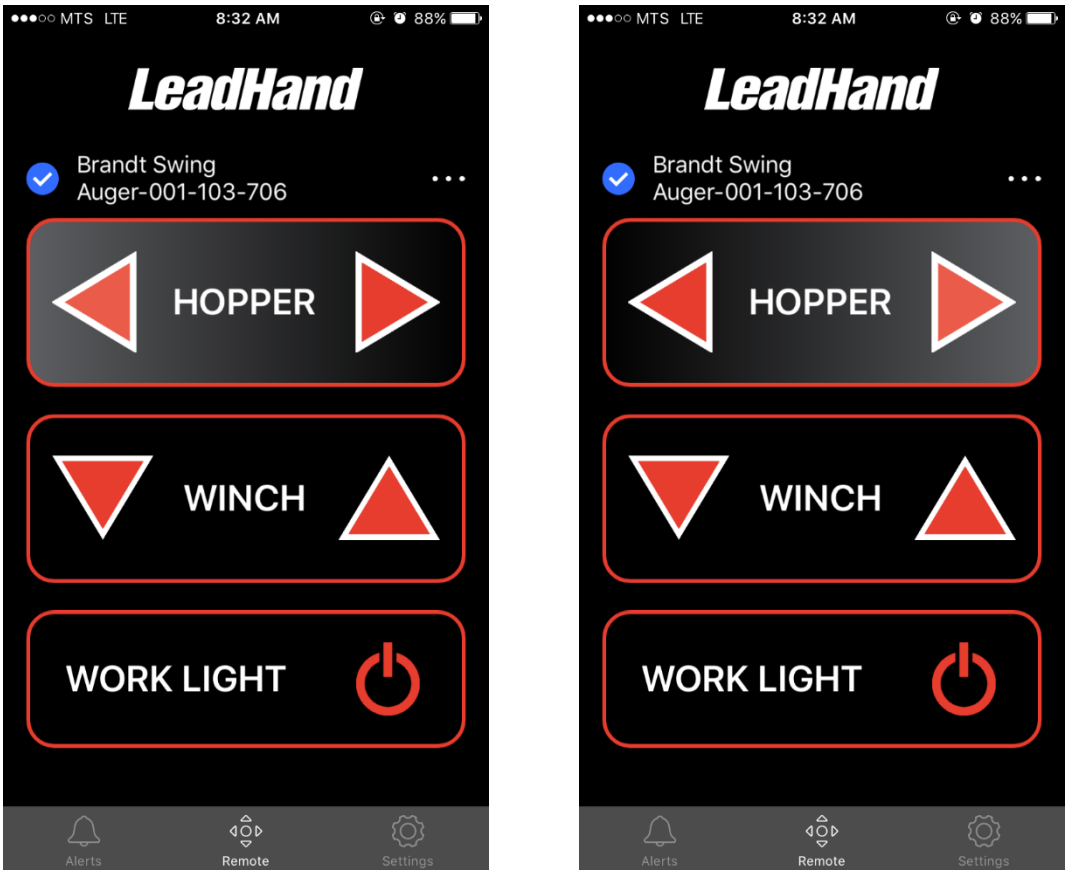


Figure 7 Hopper Movement

Winch Movement

The winch can be moved up or down by the pressing the directional arrow controls on the main screen. During the winch movement, the Winch control will appear activated (turns light grey). No movement will occur if both directions are pressed at one time. The winch cannot be moved at the same time as the swing auger. The winch movement will stop if:

- The winch movement controls are let go
- The connection between the mobile device and the auger control is dropped
- The app closes
- The app moves to the background
- The app is navigated away from the main page
- A contrary command (winch commanded in a different direction) is received from the handheld remote or the manual controls

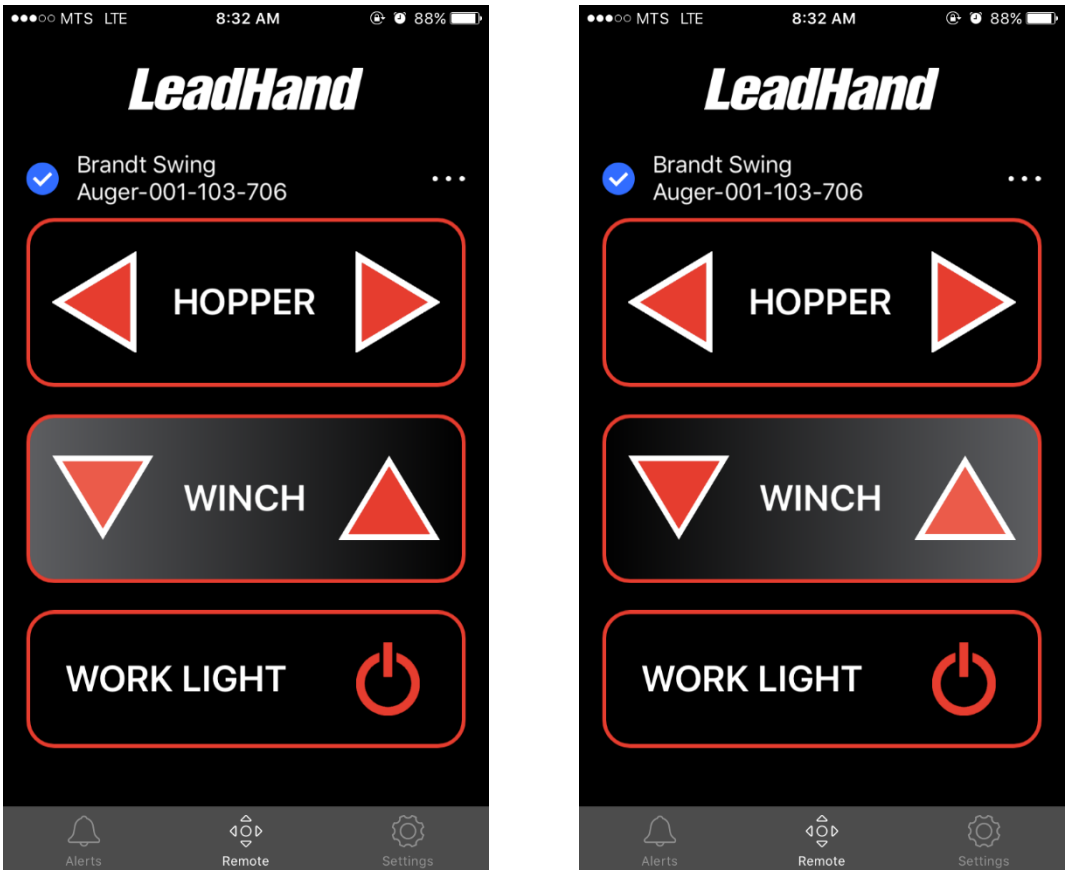


Figure 8 Winch Movement

Work Light Control

The worklight can be turned on or off by the pressing the worklight control. When the worklight is turned on, the worklight control will be activated (turned red) in the app (regardless of whether the mobile device commanded the worklight to be on). When the worklight is turned off, the worklight control symbol will be deactivated. There is an intermediate state between turning the worklight on and off from the app where the control will be partially activated (turned translucent red). This state indicates to the user that the command has been sent to the auger controller, but the auger controller has not yet received the command. In the case that the connection between the mobile device and the auger controller is dropped, or the app is closed, the worklight will remain in its current state.

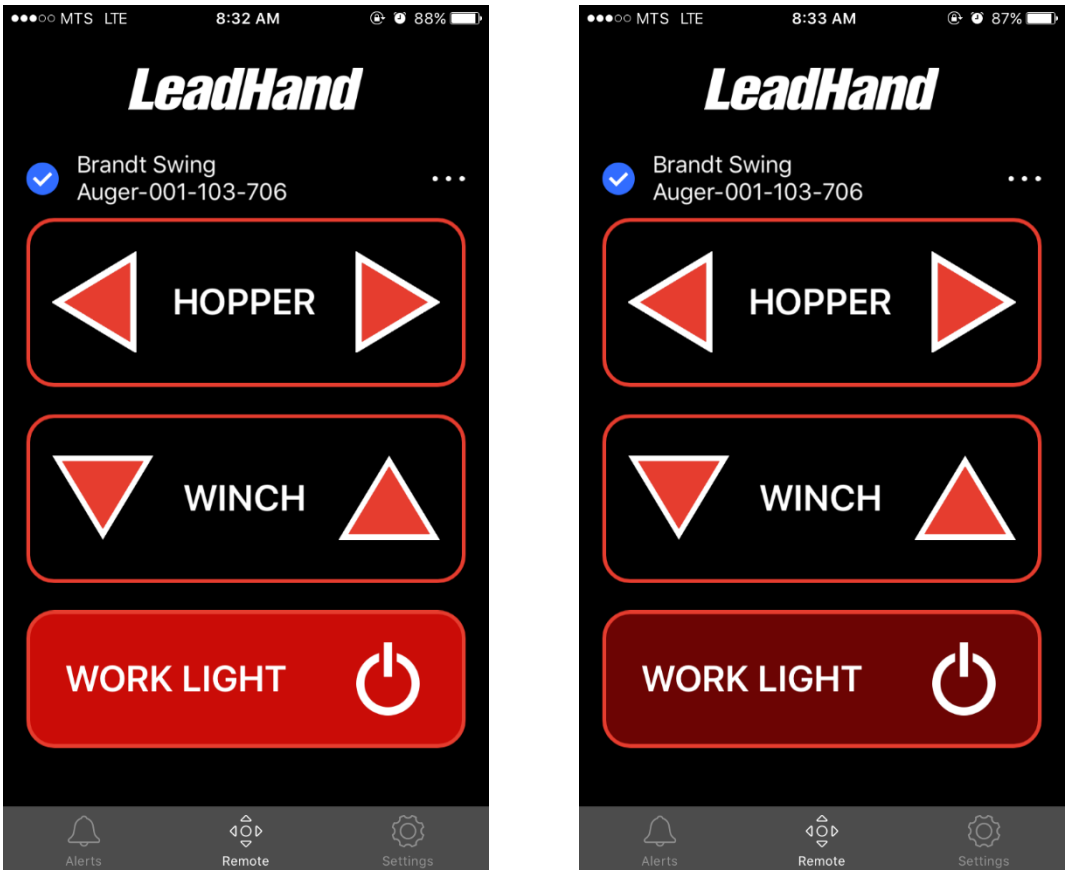


Figure 9 Worklight states, LEFT: Worklight activated, RIGHT: Worklight partially activated

Alerts

From the main screen, the alerts screen is accessible through the alert icon in the lower left hand corner. As shown below.

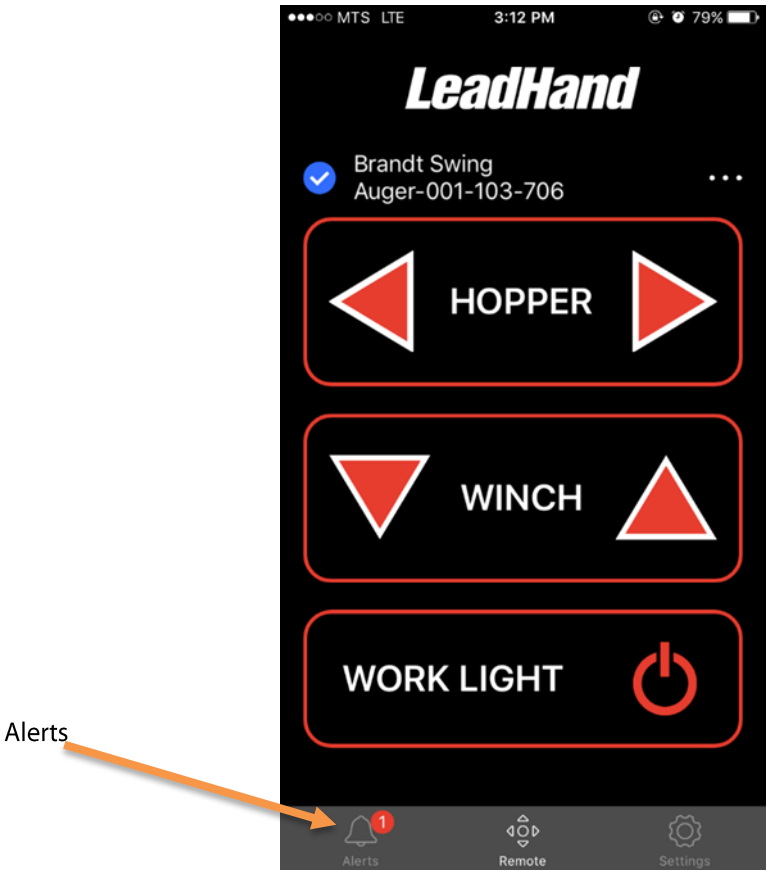
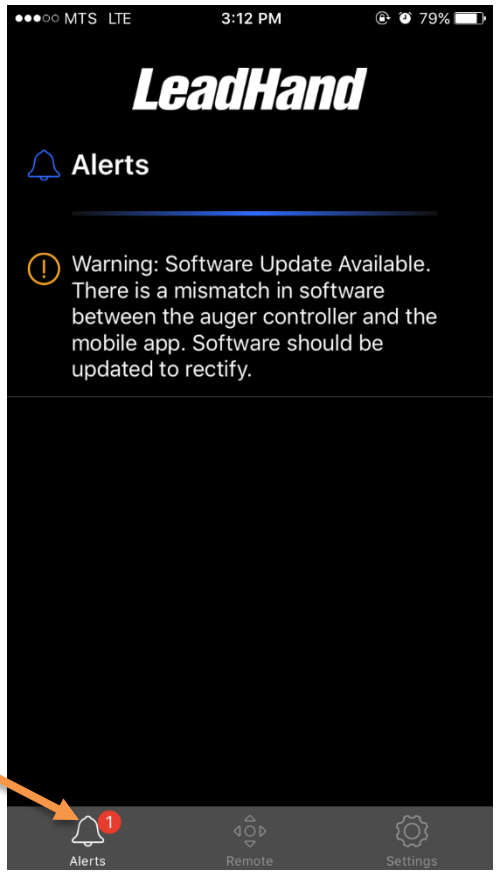


Figure 10 Alerts icon

Alert Management

When any alarms are present (whether they have been acknowledged or not), the alarm notification icon will display a red circle overlaid specifying the number of active alarms. If there are no active alarms no circle will be displayed.

The alarm notification icon can be pressed by the user to open the alarms screen. The alarms screen shows a list of the current active alarms in the system. This includes the list of all alarms that have been acknowledged, and can include specific text for the operator to provide guidance on what to do about the alarm. The alarm screen is shown below.



Red circle indicated one active alert

Figure 11 List of active alerts

When an alarm condition is no longer present, the alarm will no longer be shown in the alarm screen.

Alert Notifications

When any of the alarms in the system are first detected by the auger controller (identified in the requirements specification), the app will have the following function:

- A pop-up window will appear notifying the operator of the specific alarm that has occurred, as shown below.
- This pop-up screen will have a descriptive name of the alarm, and a button to acknowledge the alarm. The pop-up screen will disappear if either the alarm condition stops, or the notification pop-up is acknowledged.
- The mobile device will vibrate and sound an audible alarm notification for approximately 2 seconds.

Figure 12 Alert pop-up

Settings

From the main screen, the settings screen is accessible through the settings icon in the lower right hand corner. As shown below.

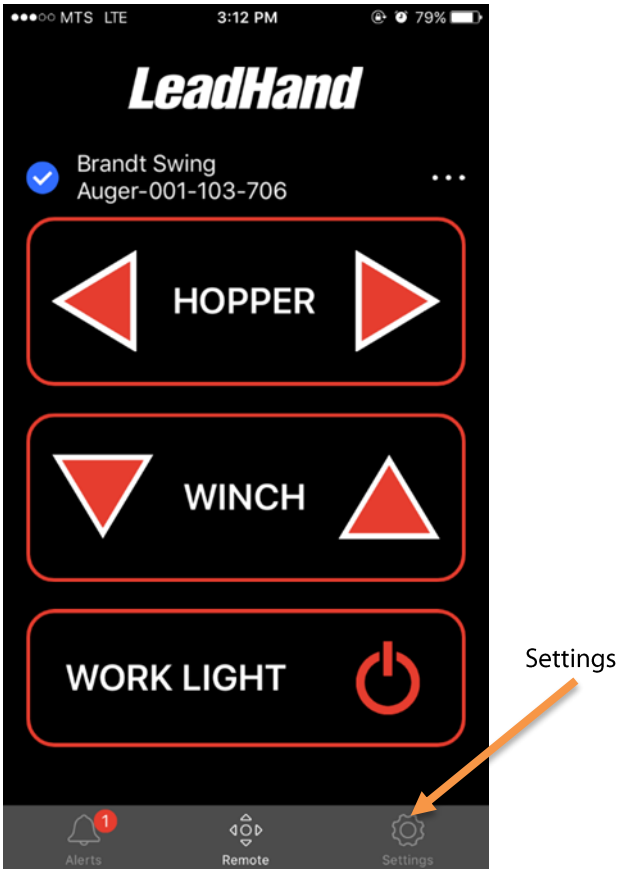


Figure 12 Settings icon

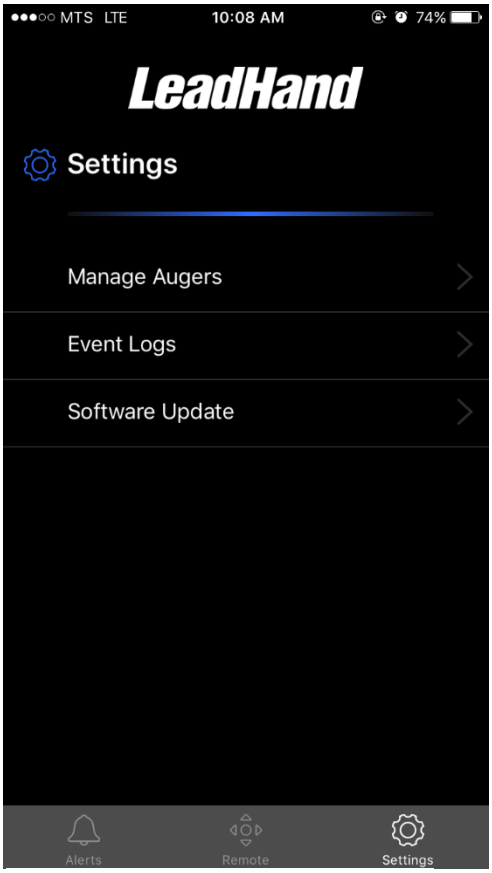


Figure 13 Setting menu

The Settings menu has three options the user can select: Manage Augers, Event Logs and Software Update, as shown below.

Managing Augers

From the Manage Augers page, the user can set the auger Wi-Fi SSID by selected “Rename Auger”, set the auger Wi-Fi password by selected “Change Password” and turn the audible alerts from the auger on or off by selected “Auger Sounds”.

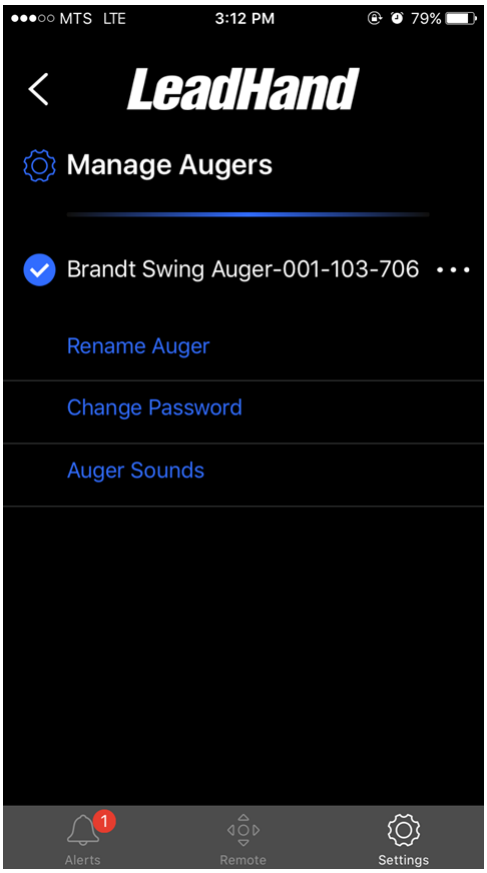


Figure 14 Manage Augers menu

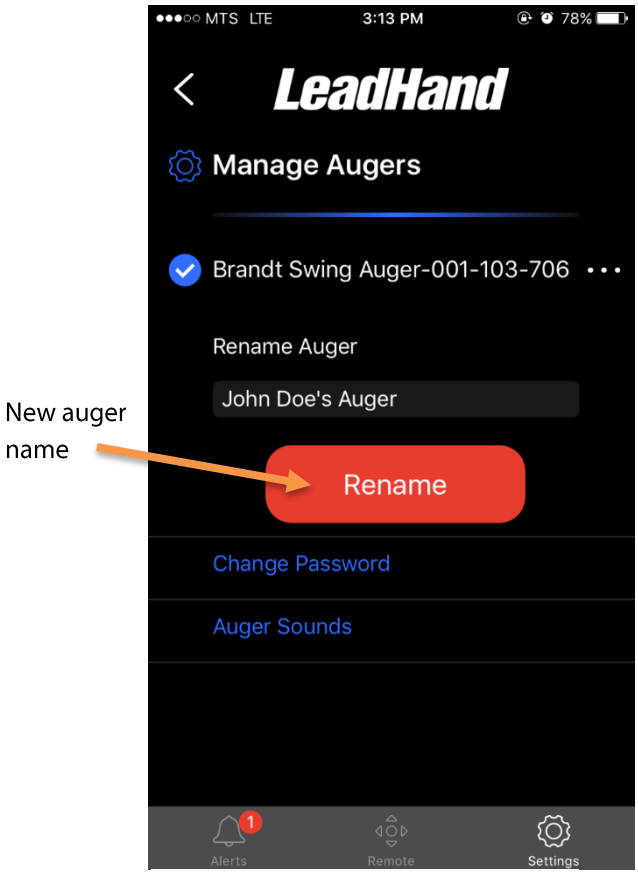


Figure 16 Renaming Wi-Fi SSID

Setting Auger Wi-Fi SSID

The SSID is the name shown for the Wi-Fi connection from the auger controller. There is a default SSID and password (see requirements document for details), but this can be changed by the user. To change the SSID a user would follow these steps:

1. Connect to the auger controller with the current SSID and password, and open the Brandt App.
2. Navigate to the Settings screen and select the Manage Augers option as shown in and Figure 13.
3. The Manage Augers screen will open, then select the Rename Auger option.
4. A textbox with a “Rename” button will appear as shown below.
5. Enter the new auger name (which is the Wi-Fi SSID) and press the "Rename" button.
6. Once the Wi-Fi SSID has been reset, a dialog will appear stating the rename was successful, as shown below. The Wi-Fi connection will be dropped at this point, and the app will be

redirected to the Wi-Fi connection page in the OS when the dialog is closed. This is because the name of the Wi-Fi SSID changed. You may also have to restart the auger controller.

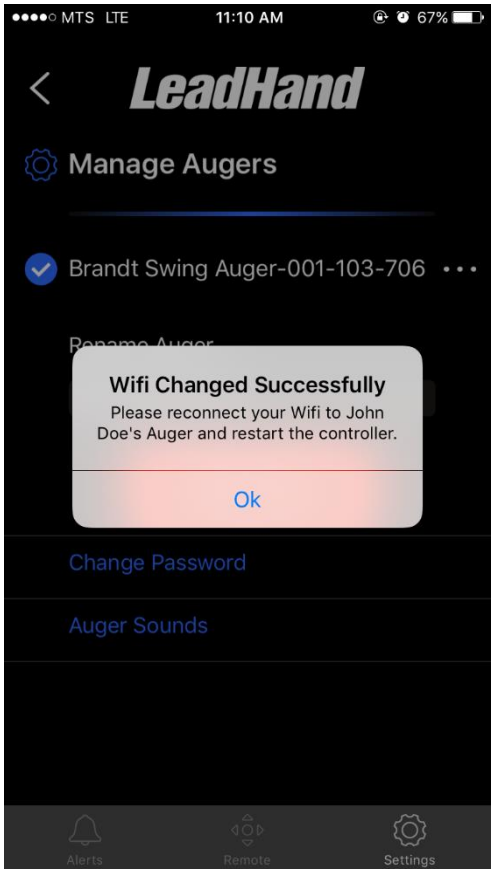


Figure 15 Renaming Wi-Fi SSID success pop-up

7. The new name should show up in the Wi-Fi connection list. This should be selected, and the password entered to select the device.
8. Once the connection is made the user can navigate back to the Brandt app.
9. A this point the name and SSID of the auger controller should be changed, and the app should be connected to the controller again.

Setting Auger Wi-Fi Password

A password is required for the Wi-Fi connection to the system. There is a default password (see requirements document for details), but this can be changed by the user. To change the password a user would follow these steps:

1. Connect to the auger controller with the current SSID and password, and open the Brandt App.
2. Navigate to the Settings screen and select the Manage Augers option as shown in and Figure 13.

3. The Manage Augers screen will open, then select the Change Password option.
4. Two textbox's with a "Change" button will appear as shown below.

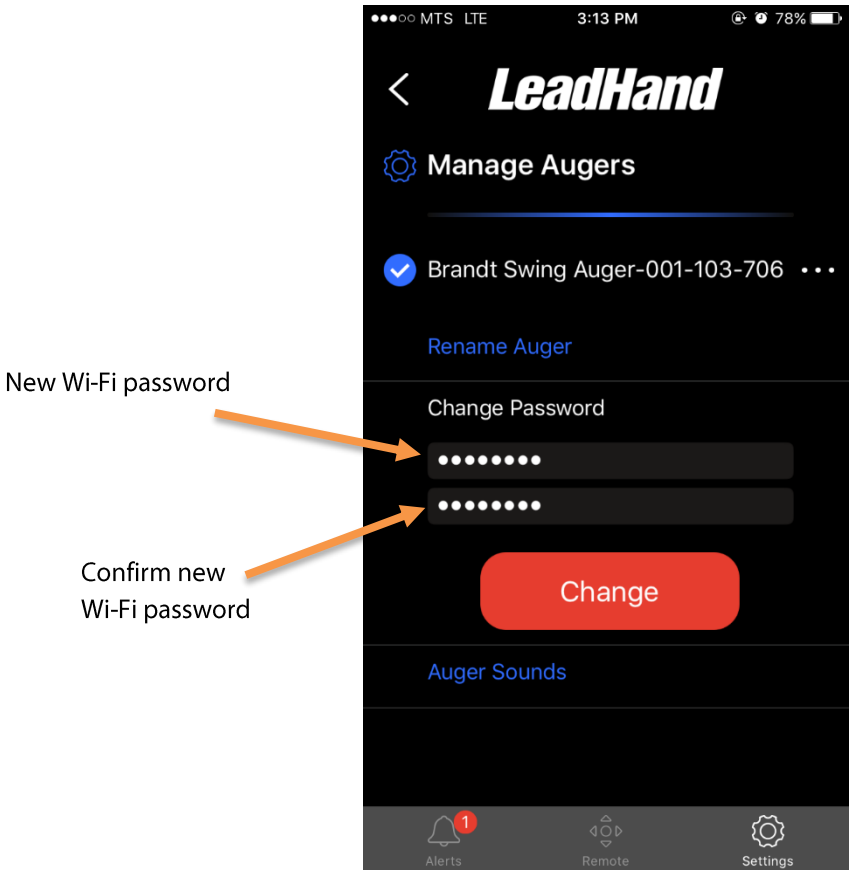


Figure 16 Changing Wi-Fi password

5. Enter the new password and the confirming password, and press the "Change" button.
6. Once the Wi-Fi password has been reset, a dialog will appear stating the change was successful, as shown below. The Wi-Fi connection will be dropped at this point, and the app will be redirected to the Wi-Fi connection page in the OS when the dialog is closed. This is because the name of the Wi-Fi SSID changed. You may also have to restart the auger controller.

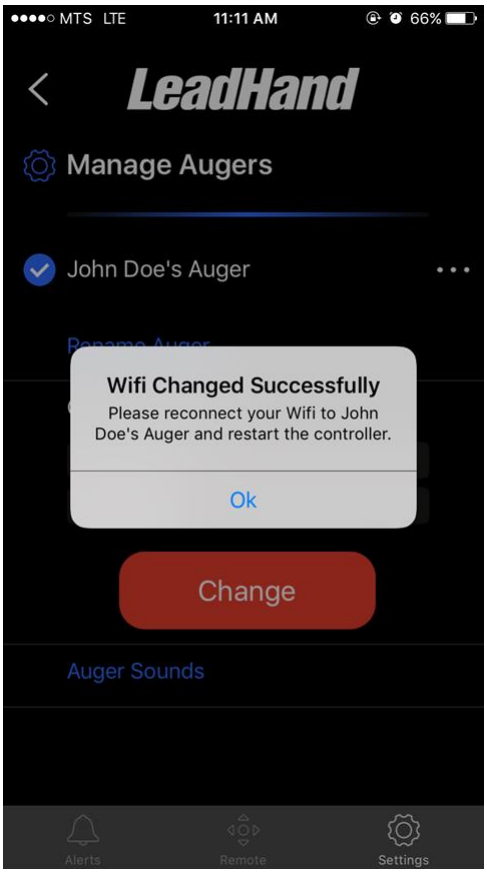


Figure 17 Changing Wi-Fi password success pop-up

7. The Wi-Fi SSID should show up in the Wi-Fi connection list. This should be selected, and the new password should be entered to select the device.
8. Once the connection is made the user can navigate back to the Brandt app.
9. A this point the app should be connected to the controller again.

Reverting to Default SSID and Password

In the case where the SSID and password need to be set back to the default (e.g. in the case where the password was forgotten). The user can reset the auger controller to the default auger name (SSID) and password (defined in the requirements specification) by holding down the "Setup" button on the auger controller overlay for 10 seconds.

Audible Alerts

The audible alarms from the auger can be muted. To turn the audible alerts on or off the user should select the Auger Sounds option from the Manage Augers menu. When the Auger Sounds option is selected two toggle switches will appear, as shown below. The first toggle switch will disable the audible alarms when the auger controller is moving the hopper or the winch. The second toggle switch will disable the audible alarm when there is a new Wi-Fi connection to the auger controller.

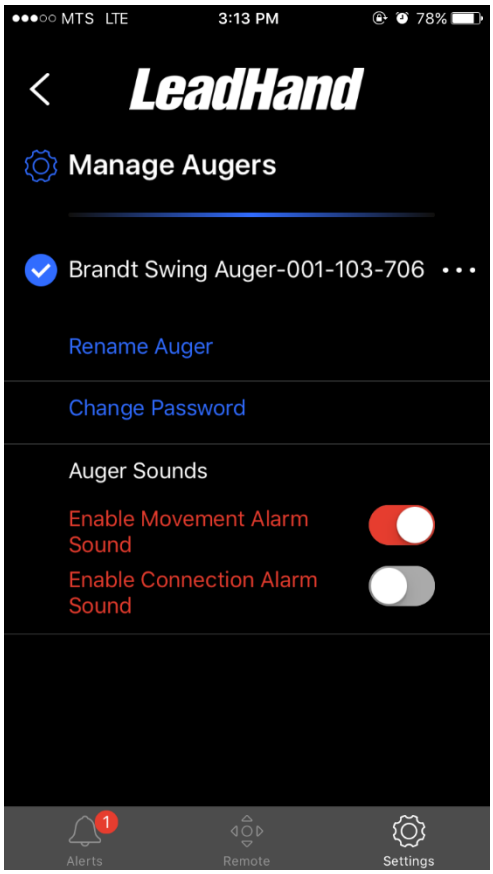


Figure 18 Auger Sounds toggle options

Event Log Management

Retrieving Event Logs

In the case where the user is connected to an auger controller, with the Brandt App open, the event logs can be retrieved from the auger controller and viewed in the app through the following sequence:

1. Navigate to the Settings screen and select the Event Logs option as shown in and Figure 13.
2. This brings the user to the event logs screen.
3. The event logs are not refreshed on a continuous basis, they need to be request from the auger controller. This is to prevent excessive and unnecessary data transfer between the auger controller and the app. To retrieve the event logs, the arrow icon is pulled by the user, as shown below.

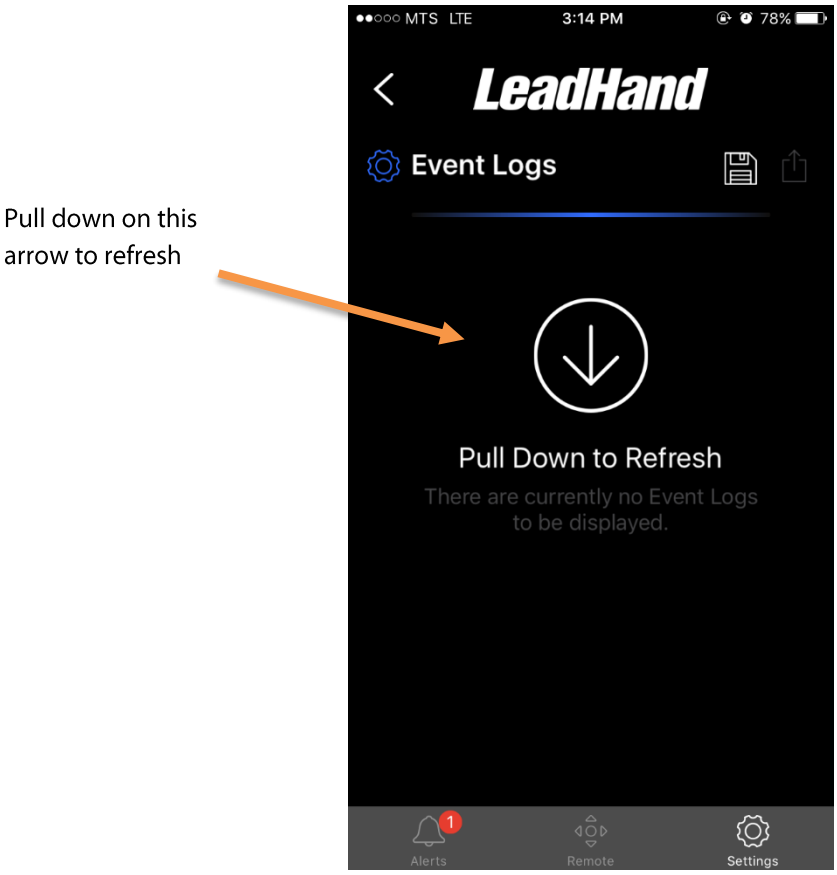


Figure 19 Retrieving Event Logs

4. The Event logs are retrieved from the auger controller and the user will see a spinning icon and the screen will say Refreshing… , as shown below. The event logs can be large, so this process may take up to a minute.

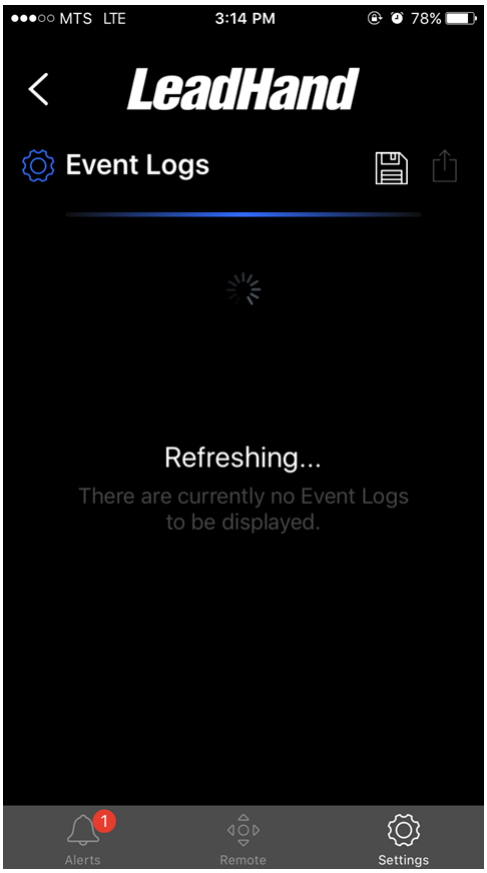


Figure 20 Refreshing Event Logs

5. Once the Event logs have been retrieved, they will be shown in the main area of the event logs screen. The event logs will show the previous sequence of activity with the auger controller that includes power up events, user interactions (button presses and commands), connection events, and alarm events. Each of the events are described in the requirements document. Each event is time-stamped with a count since the previous auger controller power-up.

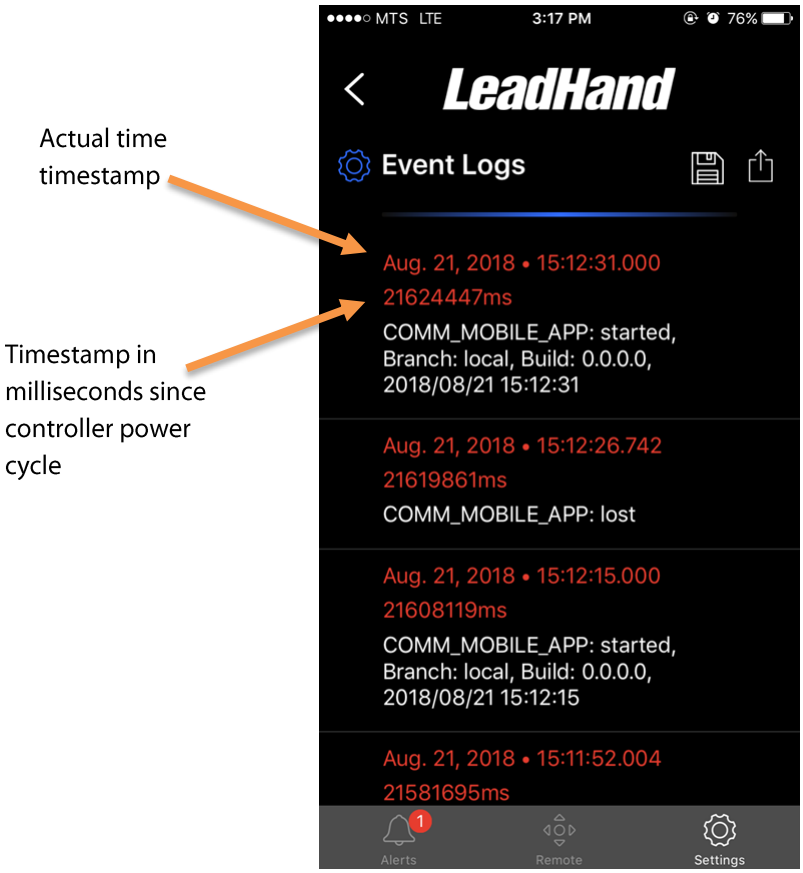


Figure 21 Displayed Event Logs

6. To refresh the event logs again, the user should pull down on the top of the list of event logs, as shown below.

NOTE: Since the auger controller does not have an internal battery, it cannot keep the date and time when power is removed, for this reason it will only have the relative time since the last power up occurred. The date and time can be correlated to the timestamp by the mobile device for the events that occurred since the last power-up, but events from previous power-up sequences cannot have time and dates associated, unless a mobile device was connected at the time.

Saving the Event Logs

1. The event logs can be saved to the Mobile Device locally to be able to be viewed at a later time (when not connected to an auger controller). The current event logs can be saved by pressing the Save icon followed by the Save Log option in the pop up list on the Event Logs screen as shown below.

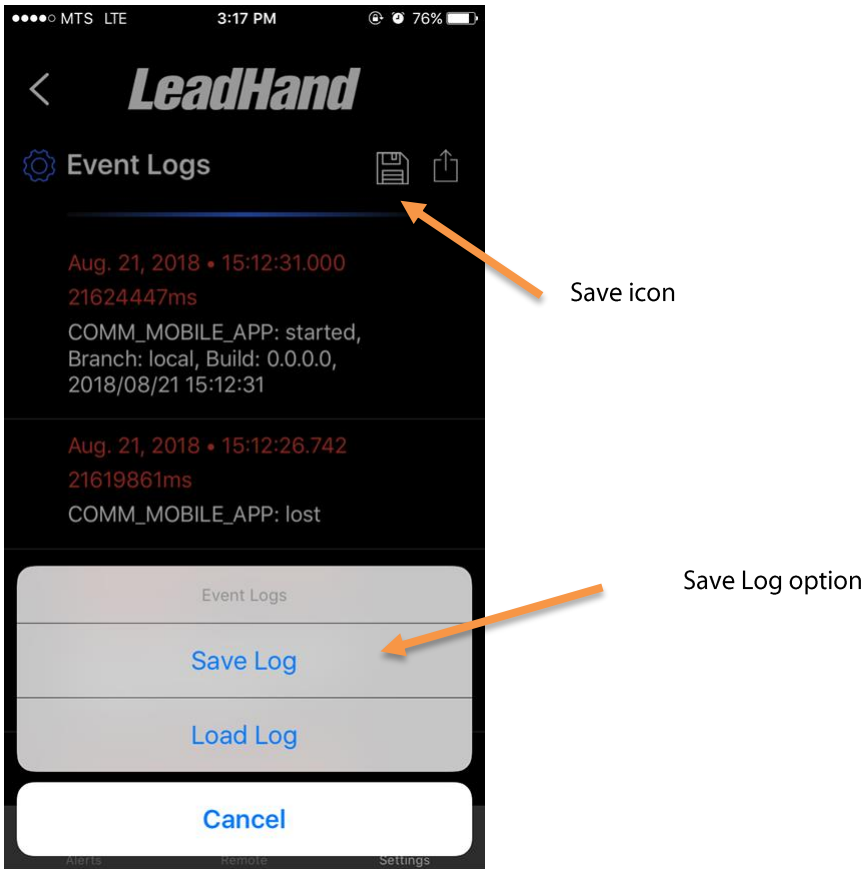


Figure 22 Saving Event Logs

2. A box allowing the user to specify the file name is displayed, as shown below.

NOTE: The most recent Event logs loaded will be autosaved with a name that includes the [Autosaved] tag. The autosaved logs will be overwritten the next time the logs are refreshed.

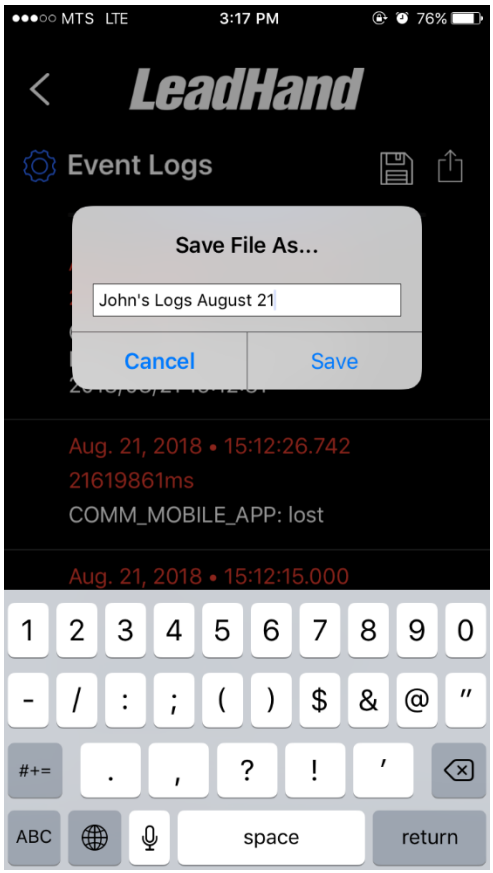


Figure 23 Saving Event Logs by name

Loading Previously Saved Event Logs File

1. A previously saved event log can be loaded by pressing the Save icon followed by the Load Log option in the pop up list on the Event Logs screen as shown below.

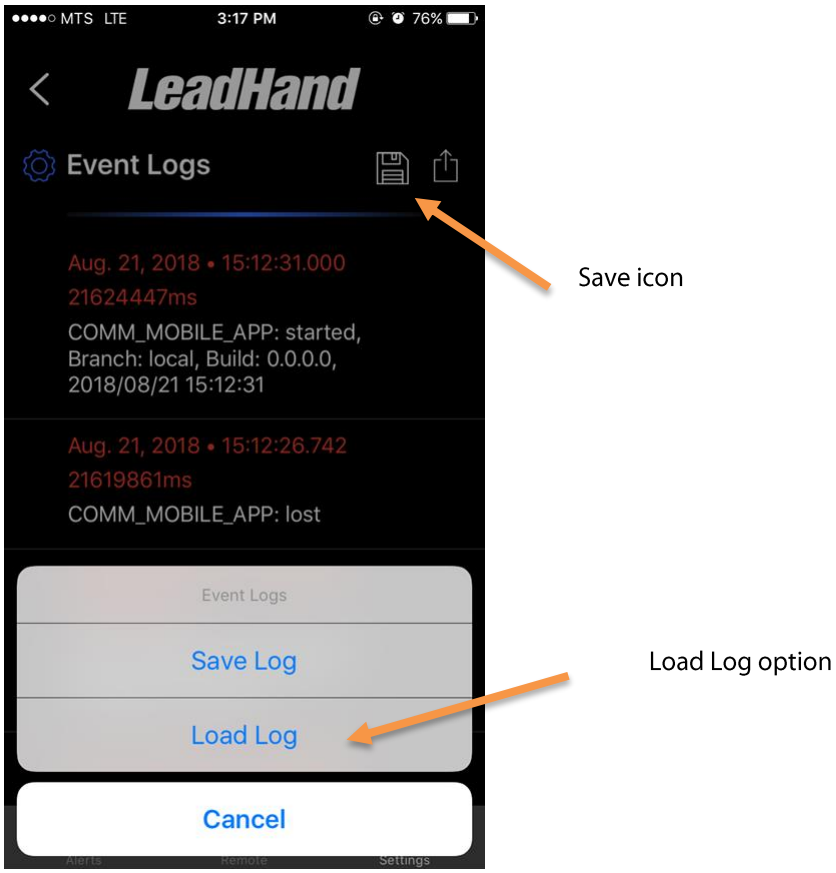


Figure 24 Loading Event Logs

2. This will open a dialog box showing a list of available event log files that were previously saved. The desired event log file can then be selected.

Emailing Event Logs

1. The event logs can be emailed to allow remote support by viewing logs from another device. To email a displayed event log file, the email icon on the event log screen is pressed, as shown below.

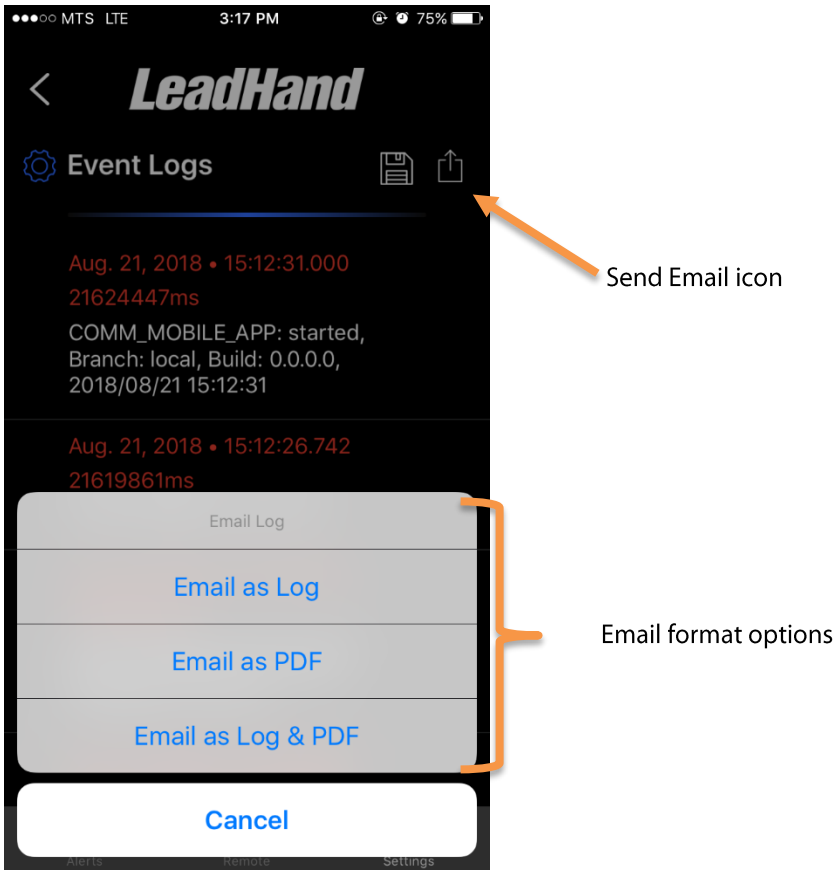


Figure 25 Email Event Logs

2. There are two different formats for emailing event logs, either as a PDF which can be opened with any PDF viewer or as a Log which will allow the user to open and view the file with the app.
3. When a format type is selected, it will open an email application on the mobile device, with an attachment that includes the event log file. The email recipient can be entered and the log file can then be sent by the mobile device.

NOTE: The mobile device will likely have to be disconnected from the auger controller in order to send a log file, because the Wi-Fi connection to the auger controller will prevent the user from Internet access on most mobile devices. The email logs feature does not require a connection to an auger controller.

Opening Event Logs from Email

In the case that a user receives an email with an attached event log file, the following process is used to open the file in the app to view the event logs.

1. The Event Log file attachment is selected in the email on the Mobile Device with the Brant App.
2. The Brandt App will be opened through selection of the file and load the Event log in the Event Log page for the user to view.

3. This Event Log can be saved to the device according to the process described above under "Saving the Event Logs".

NOTE: No connection to an auger controller is required.

Updating Auger System Software

Updates to the Brandt mobile device app can be received through the Google Play store (for Android devices) and the Apple App Store (for iOS devices). The app is downloaded and installed on the device in the typical manner for all mobile device apps. Each version of the mobile device app has embedded application software for the auger controller that is compatible with the mobile device app.

Connecting to Auger Controller after Mobile Device Update

After the new Brandt mobile device app is installed, and the mobile device is connected to an auger controller (as described in the Connecting to an Auger Controller user story). The mobile device will request the current software version from the auger controller. If the version of the auger controller matches the version of software embedded in the mobile device app, then operation will continue as normal. If there is a mismatch in the version currently on the auger controller, and the version embedded in the mobile app, an alarm pop-up notification is presented that notifies the operator that a software update is required. If the update is a minor update the user will be given two options "Update Now", and "Update Later", with a warning that states that the operation of the auger may be uncertain if the auger software is not updated. If the update is a major update the user will only be given one option, “Update Now”, and will be forced to update the auger controller software.

Update Now Option Selected

If the user selects the "Update Now" option from the alarm notification, then:

1. The Software Update Screen is shown (as shown below).

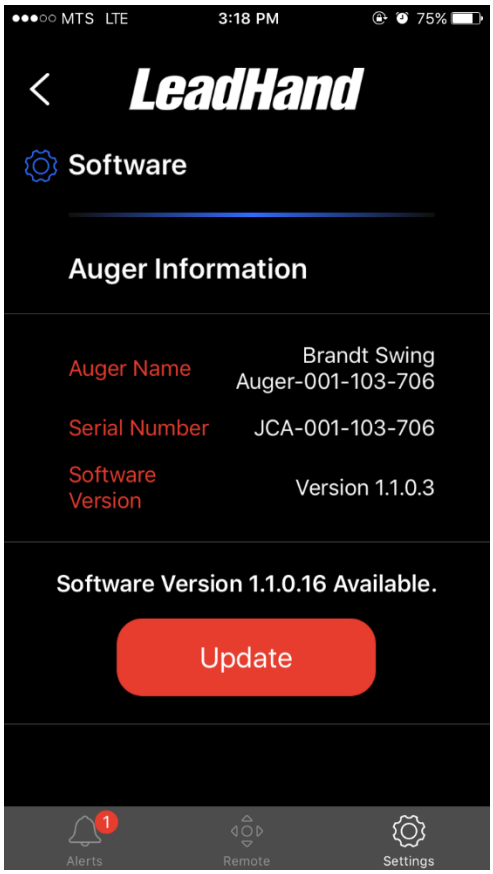


Figure 26 Updating Software

2. The user presses the "Update" button. NOTE: If the user navigates away from this page, it is the same as choosing the "Update Later" option from the initial pop-up alarm notification.
3. The new software is transferred to the auger controller, with a progress bar shown the update progress. This process should typically take 1 minute or so.
4. Once the software update is complete the a pop up a dialog will appear stating the change was successful, as shown below. The Wi-Fi connection will be dropped at this point, and the app will be redirected to the Wi-Fi connection page in the OS when the dialog is closed.
5. The user can reconnect to the auger Wi-Fi, navigate back to the app and resume normal operation.

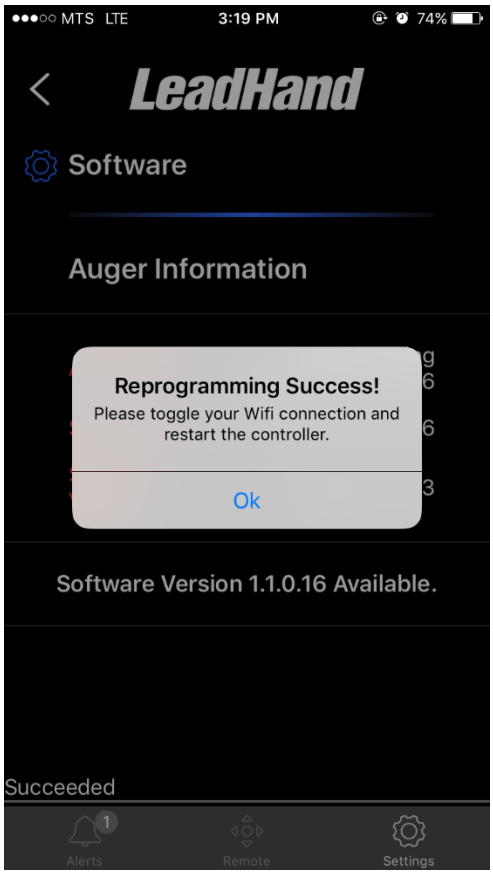


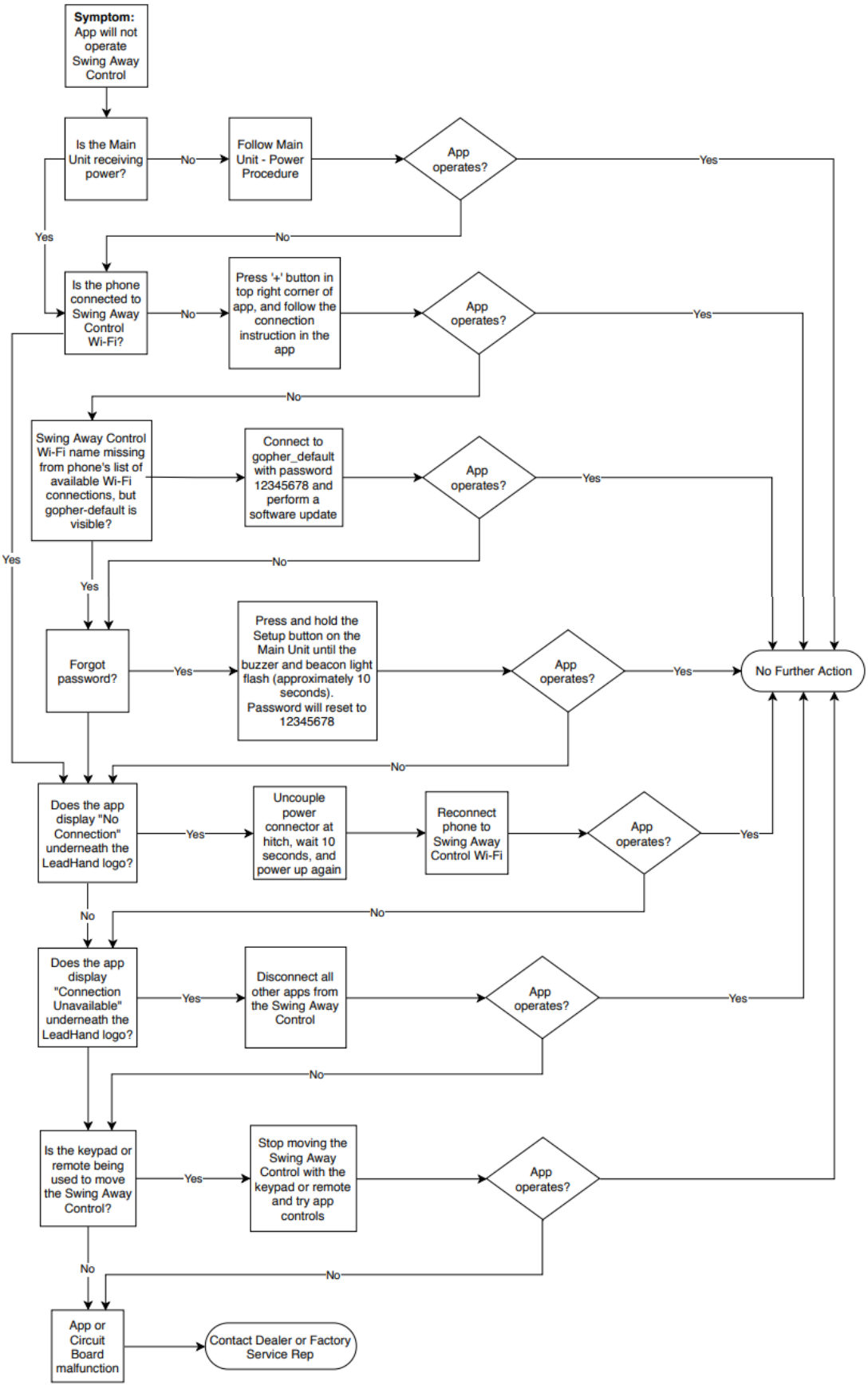
Figure 27 Updating Software success

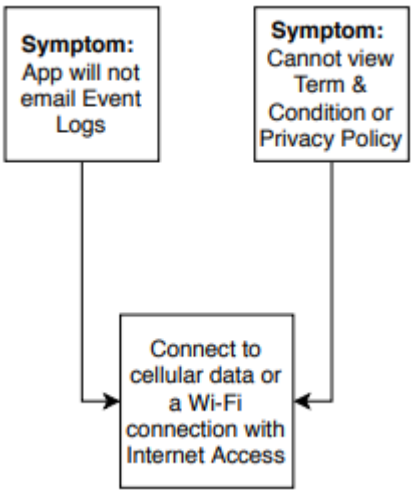
Update Later Option Selected

If the user selects the "Update Later" option from the alarm notification, then a "Software Update Required" alarm is registered and listed in the current alarms screen. Normal operation of the auger can continue, but this is not recommended, as the software change may cause incompatibilities between the mobile device and the auger controller. To update the software after the initial pop-up has been dismissed the user can:

1. Navigate to the Settings screen and select the Software Update option as shown in and Figure 13.
2. The software can now be update according to the process described above under "Update Now Option Selected".

Troubleshooting Guide




Symptom: App will not email Event Logs
Symptom: Cannot view Term & Condition or Privacy Policy
Connect to cellular data or a Wi-Fi connection with Internet Access