

# DP-IR+ App

## User Guide

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## 1. Introduction

The DP-IR+ App provides an easy way for users to connect with Heath DP-IR+ devices via BLE (Bluetooth Low Energy) and capture survey data. All users will be able to:

- Search for nearby DP-IR+ devices.
- Connect to a device.
- Configure breadcrumb logging interval.
- Configure application alarm thresholds.
- Perform surface and bar hole surveys.
- View the methane gas value (in PPM or % Gas Concentration).
- Turn DP-IR+'s pump on or off.
- Log the leak information including images.
- Switch the device during a survey.
- Pause or end the survey.
- View the trail on the map along with leak pins.
- Share the CSV, KML and zip files of the survey data.

## 2. Compatibility

DP-IR+ App is compatible with all Android and iOS mobile devices with the below specification:

- Android – 5.5 Inches and above, OS – 7.0 and above
- OS – 4.7 Inches and above, OS – 11.0 and above



### 3. Prerequisites

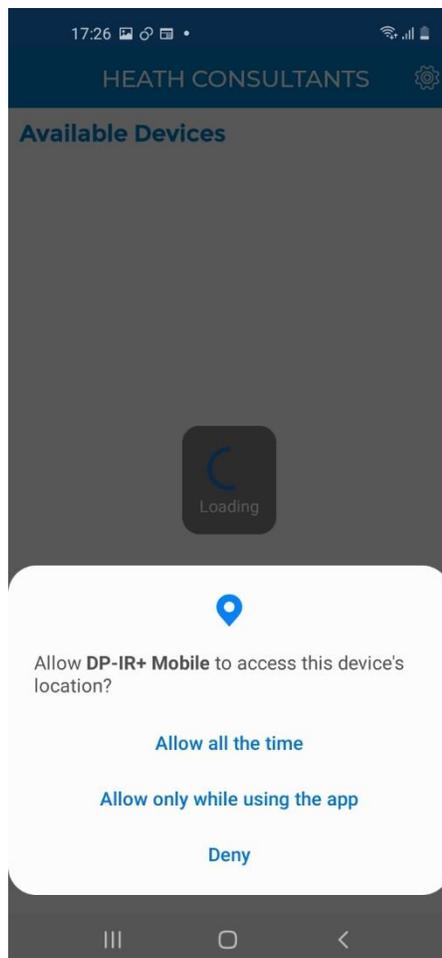
In order to capture location data and connect to the DPIR+ instrument, the mobile device's GPS location and Bluetooth should be turned on. Location and Bluetooth permissions should also be enabled for the app.

## 4. Functionality Overview

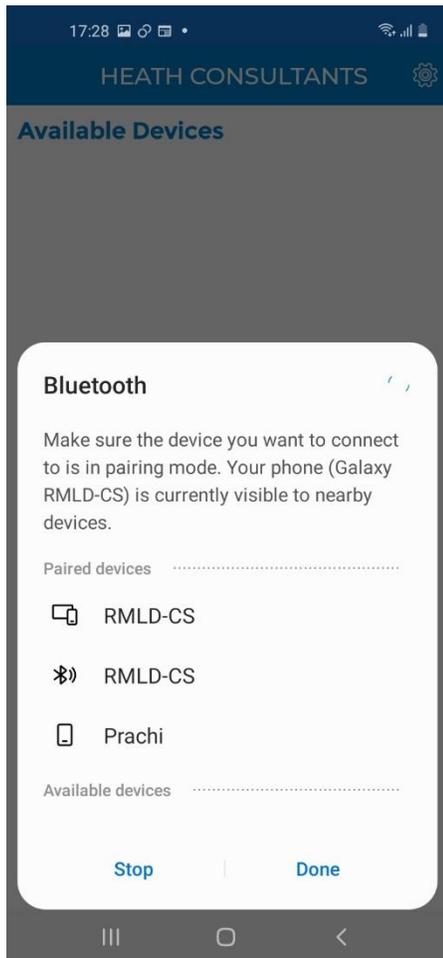
### 4.1. Initial Permission Request

After launching the app for the first time, the user will be asked for Location and Bluetooth permission. The user should select “Always While Using App” and “OK” to provide these mandatory permissions to use this application.

Location Permission:



### Bluetooth Permission:

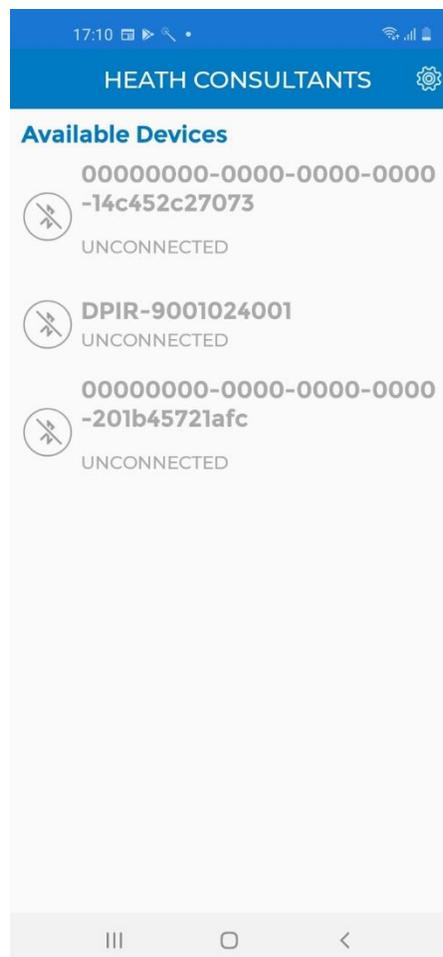


## 4.2. Connect Device Screen

### 4.2.1. Nearby Bluetooth devices list

Upon opening the application, a list of all Bluetooth devices available in proximity will be displayed.

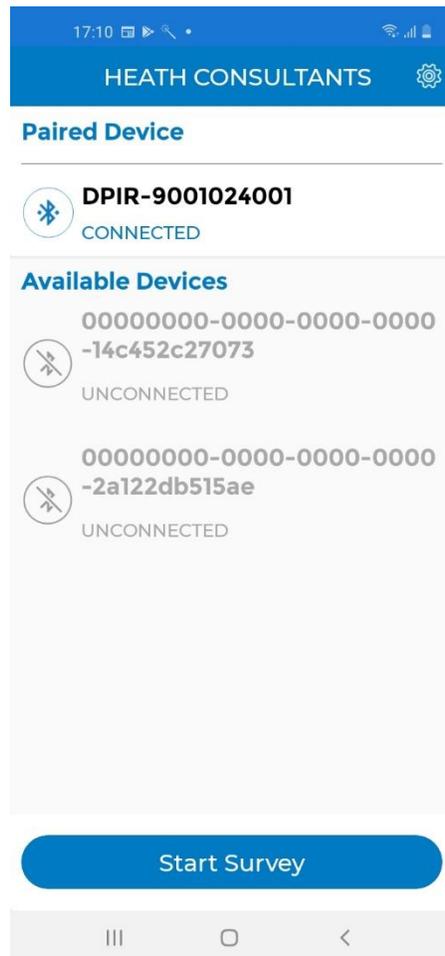
The device list can also be refreshed by tapping in the middle of the page and moving your finger towards the bottom of your screen.



### 4.2.2. Connect to the device

When a device is selected from the list, an attempt to connect will be

made. If a connection is not established within one minute, the request will timeout. If the desired instrument is not displayed in the list, please ensure that Bluetooth is turned on in the instrument.

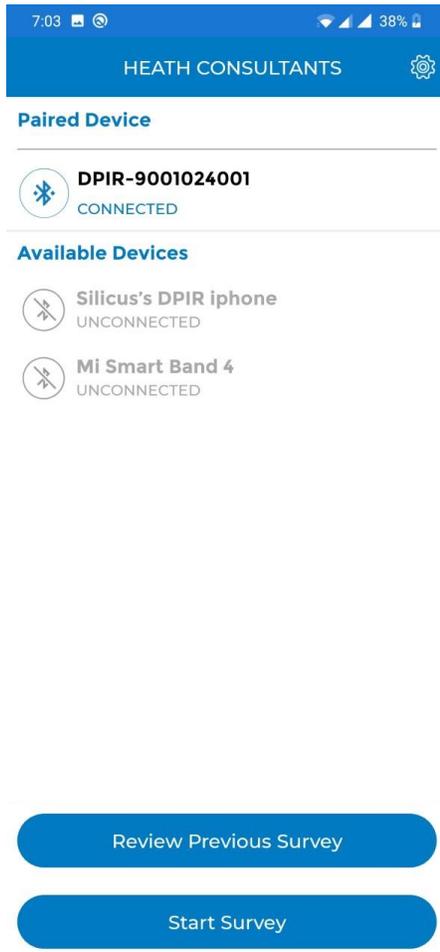


#### 4.2.3. Start the survey

If the required permission have been granted, once a device is selected and a connection has been established, the user can start the survey by clicking “Start Survey” Button. Upon selection the user will be directed to the “Surface Survey Screen”.

#### 4.2.4. Review Previous Survey

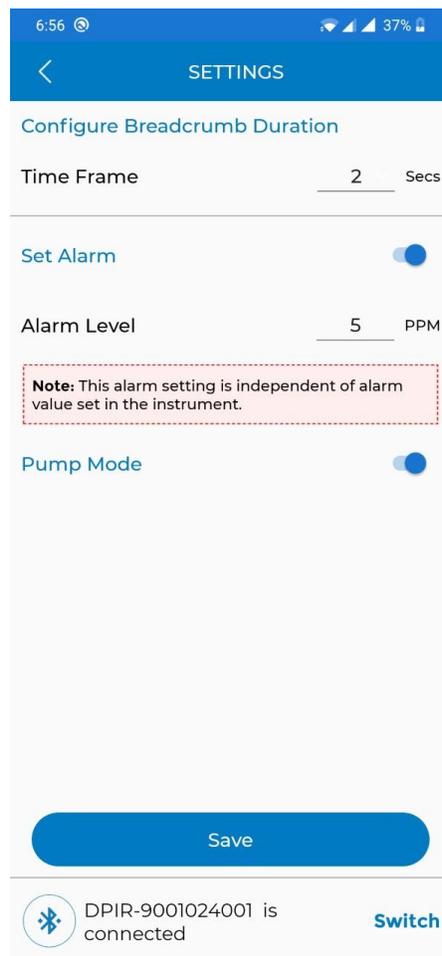
If for any reason the user was not able to successfully save or share the previous survey, the “Review Previous Survey” button allows the user to review and save the most recently performed survey from the Survey Map screen.



### 4.3. Settings Screen

This screen allows the user to configure the following:

- Breadcrumb Time Frame
- Alarm Settings
- Pump Settings



#### 4.3.1. Time Frame

Users can configure the interval between breadcrumbs ranging from 2 to 30 seconds. This value will be used to generate the .KML file which draws the route (by capturing latitude and longitude from the mobile phone device).

#### 4.3.2. Alarm Settings

Users can enable or disable the applications audible alarm using the “Set Alarm” toggle. When the alarm is enabled, an audible alarm will sound, and a message will be displayed on the Surface Survey screen when the measured methane gas level meets or exceeds the user configured value in the “Alarm Level” field.

Note: By default, the alarm is ON and will be played if the methane gas reading has a value equal to OR greater than 5 PPM. If the selected gas reading source is “percentage gas concentration”, then Alarm will not be played irrespective of the alarm setting.

#### 4.3.3. Pump Settings

The “Pump Mode” toggle can be used to turn the pump on or off. This command will only be sent to the device once the user clicks the “Save” button. The DP-IR+ must also be set to BT mode in order to receive the command.

#### 4.4. Surface Survey Screen

This screen will display the following based on data received from DP-IR+ device:

- Surface Mode / Bar Hole Mode (covered in 4.5) selection
- PPM/Gas concentration of methane gas
- Alarm indication
- Connected device name
- “Switch” button to connect to a different BLE device during the survey



On the left-hand side there is a “back arrow button”: This will navigate back to the “Connect Device” screen.

#### 4.4.1. PPM/Gas Concentration

The values are displayed on screen depending on the selected gas reading source.

If Gas reading source is 0 or 1: "PPM" tag with value received from DP-IR+ device is displayed. It is measured in PPM.

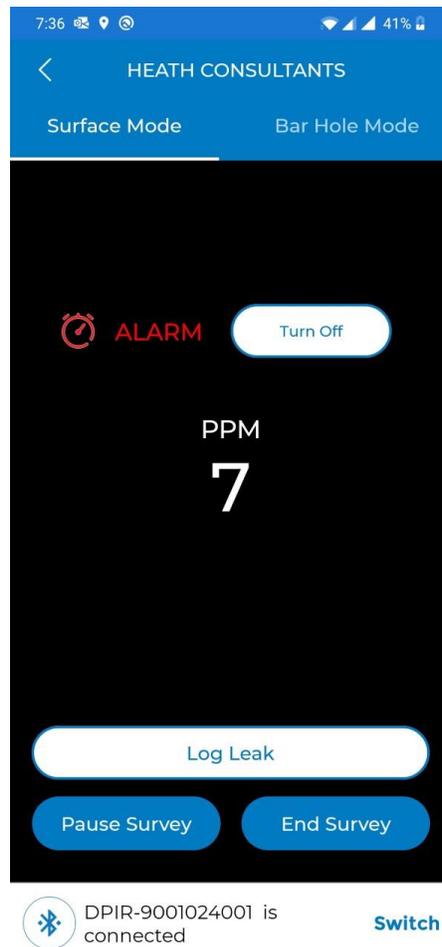
If Gas reading source is 2: "GAS CONCENTRATION" tag with value received from DP-IR+ device is displayed and is measured in Unit percentage (%)

#### 4.4.2. Alarm Indication

During the survey, if the detected methane level exceeds the user configured alarm threshold (default value is 5 PPM), then an alarm sound will play and "ALARM" will be displayed in red.

The "Turn Off" button will suppress the current alarm for 5 minutes. The alarm will start playing again after 5 minutes, or if the alarm value is decreased to normal range and increased back to alarm level.

If the selected gas reading source is "percentage gas concentration", then Alarm text will not come irrespective of the alarm setting.



#### 4.4.3. Log Leak Button

When performing a survey in Surface Mode, the “Log Leak” button allows users to capture additional details for a leak. Additional details can be found in Section 4.6

#### 4.4.4. Pause Button

The “Pause Survey” button allows users to suspend the current survey. When a survey is paused, the DP-IR+ Application will not capture breadcrumbs or methane values from the device.

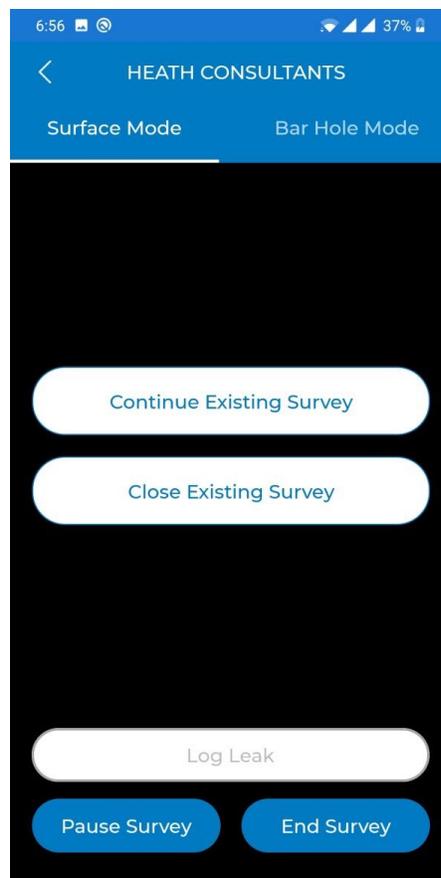
#### 4.4.5. Resume Button

When a survey is paused, the "Resume Survey" button allows a user to continue the survey. Once selected, the user will be prompted with the following two options:

1. Continue Existing Survey
2. Close Existing Survey

On selecting option 1 “Continue Existing Survey”, existing survey will be resumed, and readings from DP-IR+ will be displayed.

On selecting option 2 “Close Existing Survey”, existing survey will be ended, and the user will be navigated to “Survey Map Screen”.



 DPIR-9001024001 is connected

 Switch

#### 4.4.6. End Survey Button

Once the Survey is completed, the user can review and share or save the captured data by clicking on the “End Survey” button.

When selected, the user is prompted “Are you sure you want to end the Survey?”

Upon clicking “Yes”, the application navigates to “Survey Map Screen”.

On “No” click, the user resumes the current survey.



#### 4.4.7. Footer Area

The footer area displays the name of the device that is currently connected and allows the user to switch devices.

By pressing the “Switch” button, the user will be navigated to Connect Device screen where a different DP-IR+ device can be selected.

#### 4.5. Bar Hole Mode Screen

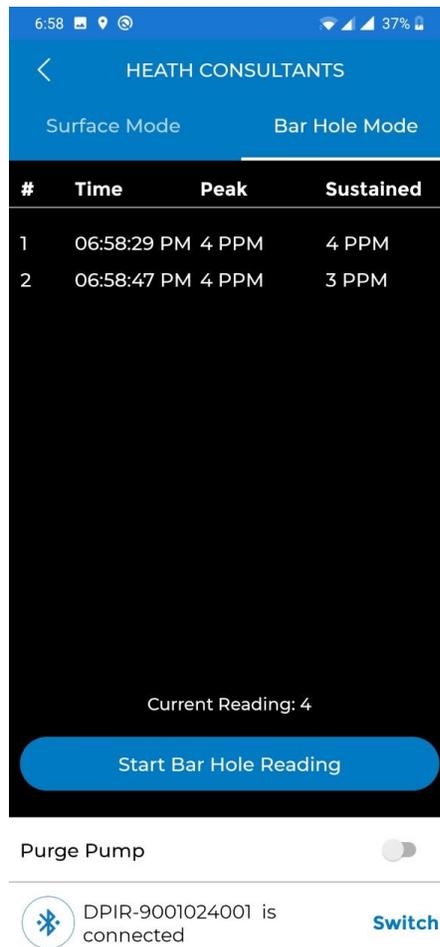
**Note:** In order to fully utilize this functionality, it is important to make sure the connected DP-IR+ device is set to Bluetooth mode as seen in the below image:



The Bar Hole Mode enhances a technician's ability to perform bar hole surveys by automatically controlling the pump while capturing the peak and sustained methane readings over a 15 second duration. Upon switching to the Bar Hole Mode screen, the DP-IR+ Pump should turn off.

The Bar Hole Mode screen provides the following:

- Current Reading of PPM/Gas Concentration of methane gas
- "Start Bar Hole Reading" button
- "Purge Instrument" toggle
- Connected Device Name
- "Switch" button to connect to a different BLE device during the survey

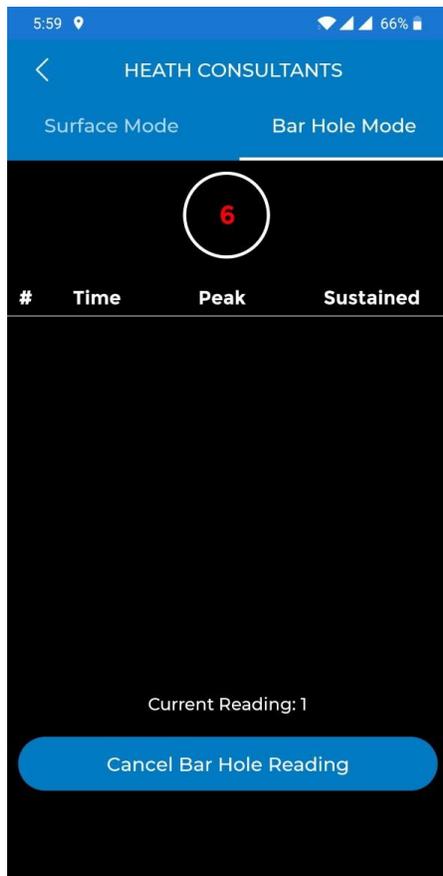


#### 4.5.1. Current Reading

Current Reading will display the latest methane value received from the DP-IR+ instrument.

#### 4.5.2. Start Bar Hole Reading Button

On pressing "Start Bar Hole Reading" button, the DP-IR+'s pump should turn on, and a 15 second timer will be displayed in the application. After 15 seconds, the pump will turn off and the peak and sustained readings will be added to the table as shown in below picture.



#### 4.5.3. Purge Instrument

When performing bar hole surveys, it may be required to purge existing gas out of the DP-IR+ instrument prior to performing subsequent readings. This can be accomplished using the “Purge Instrument” toggle to manually turn the pump on and off. By default, the “Purge Instrument” toggle will be OFF.

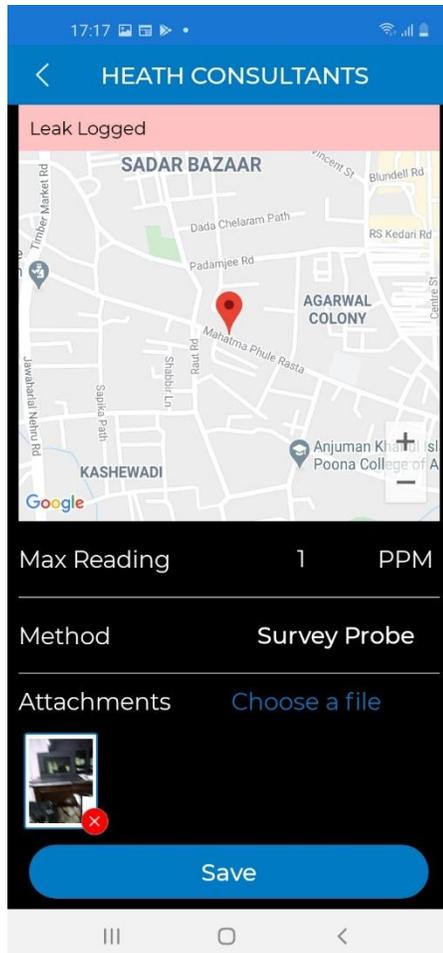
#### 4.6. Log Leak Screen

This screen will allow the user to log a leak while performing a survey. Based on the current user position, this page will display:

- Location Pin
- Max Reading
- Max Reading Unit



- Method
- Attachments



#### 4.6.1. Pin

On the map, a red pin will be shown based on the detected coordinates from the mobile device's GPS. The user can adjust the pin location by dragging and dropping it to a specific position where leak is found.

#### 4.6.2. Max Reading

By default, the value displayed on the Surface Survey screen when the "Log Leak" button is automatically populated in this field.

If needed, the user can enter a different value.

#### 4.6.3. Max Reading Unit

By default, the unit displayed on the Surface Survey screen when the “Log Leak” button is automatically populated in this field.

If needed, users can select a different unit from the drop-down.

#### 4.6.4. Method

User can select the method used for quantifying the leak from the following options:

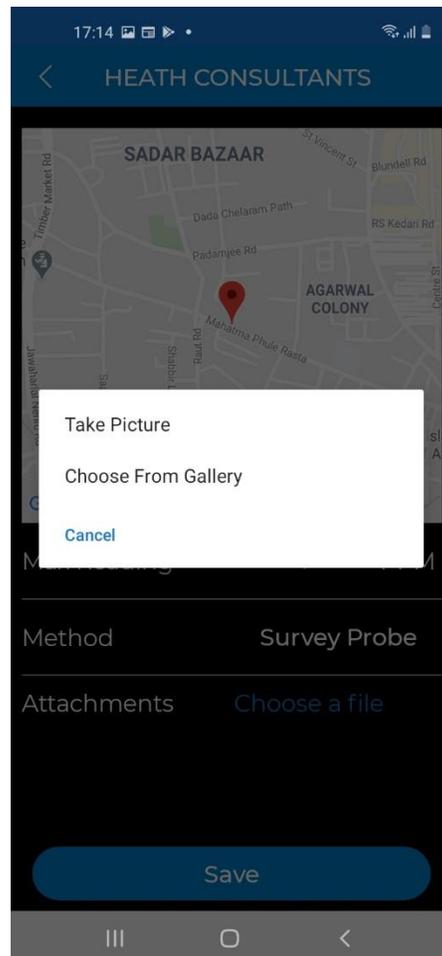
- Survey Probe
- Bar Hole Probe
- Method 21

#### 4.6.5. Attachments

Users can include images from camera or gallery for the specific leak location. A maximum of 5 images can be uploaded for one leak.

Upon choosing the images, the image will be shown as a thumbnail and the user can tap on the image to view it. Selected image will be shown in large view mode. By tapping the cross icon, the image will be closed.

Upon choosing the images, the image will be shown as a thumbnail and the user can delete the image by clicking the red cross icon placed below the thumbnail image.

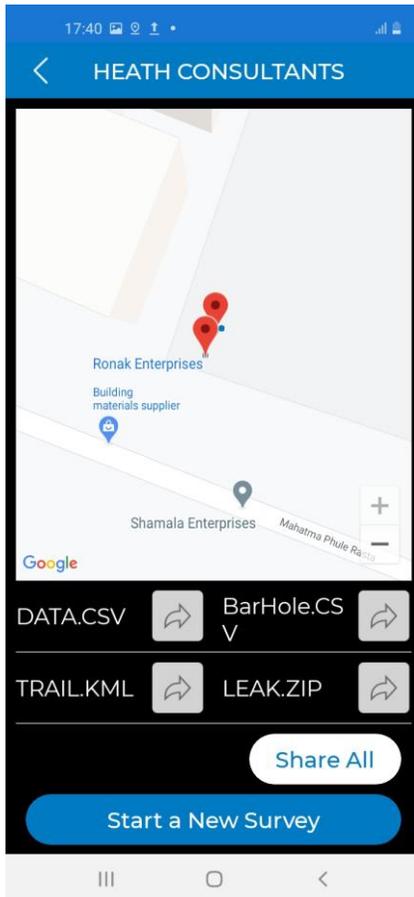


#### 4.6.6. Save Button

On clicking the "Save" button, a leak will be logged and a message "Leak Logged" will appear. After this, the app will navigate back to the Survey Screen.

## 4.7. Survey Map Screen

This screen will display the breadcrumbs captured during the survey along with any leak pins.



### 4.7.1. DATA.CSV

The “DATA.CSV” button allows the user to share or save the generated CSV file.

This CSV file will contain all the survey data from the device.

If no survey data is available, an alert “No data available to generate file” will be shown.

### 4.7.2. TRAIL.KML

The “TRAIL.KML” button allows the user to share or save the generated KML file. The KML file will contain the survey trail and leak log location data based on the selected GPS logging rate.

If no survey data is available, an alert “No data available to generate file” will be shown.

#### 4.7.3. BARHOLE.CSV

The “BARHOLE.CSV” button allows the user to share or save the generated CSV file with all the bar hole mode survey data.

If no survey data is available, an alert “No data available to generate file” will be shown.

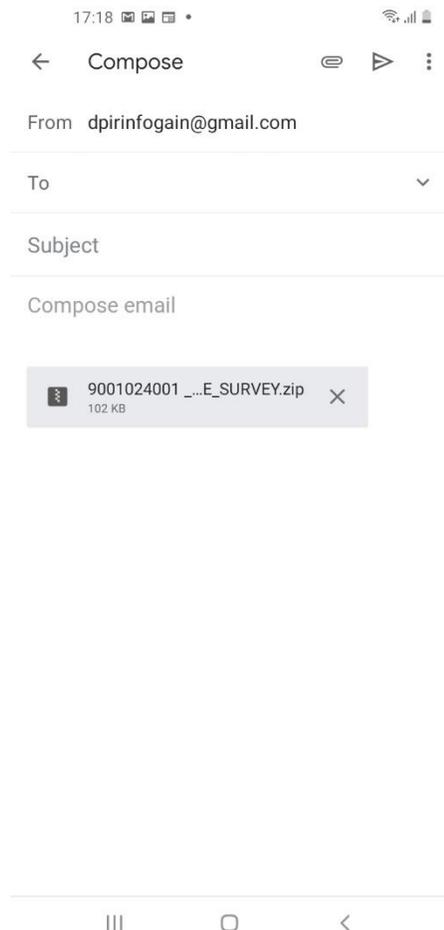
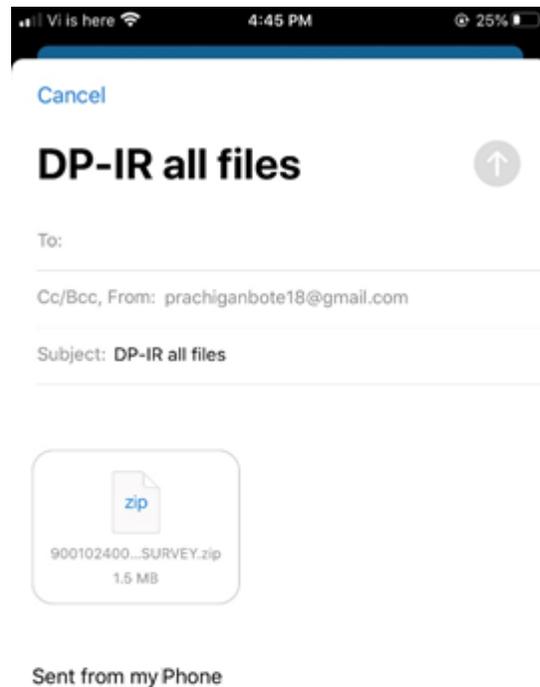
#### 4.7.4. LEAK.ZIP

The “LEAK.ZIP” button allows the user to share or save the generated ZIP file. This file will contain the logged leak locations and images that were captured. If no survey data is available, an alert “No data available to generate file” will be shown.

#### 4.7.5. Share All

The “Share All” button allows the user to share or save the generated DATA.CSV, TRAIL.KML, LEAK.CSV and leak attachments (if any) as a single zip file.

If no survey data is available, an alert “No data available to generate file” will be shown.



#### 4.7.6. Start a New Survey

The “Start a New Survey” button allows users to begin a new survey. If the user has not saved or shared any of the files from the previous survey, then an alert “Please save files by sharing before navigating away” is displayed.

The “Go to Home anyway!” button allows the user to navigate to “Connect Device Screen” without saving existing data. On “Cancel” click, the user will stay on the current screen.

**Note:** On redirecting to “Connect Device Screen”, all data will be lost.

## 5. Troubleshooting & Information

### 5.1. Connect Device Screen

#### 5.1.1. Warning Alerts

In case there are any issues for connectivity or device data related warning alerts will be visible as per applicability

- **Connection timeout alert**

If for some reason, the selected device is not connected, then an alert “Not able to connect. Please try again!” is displayed. Here the timeout of the connection attempt is 1 minute.

- **Bluetooth alert on scanning the devices**

If the mobile device’s Bluetooth is off and the user attempts scanning nearby devices, an alert “DP-IR device/Bluetooth is disconnected” is displayed. Users will need to turn on the Bluetooth device.

- **GPS alert on scanning the devices**

For Android: If the mobile device’s GPS Location is off and the user attempts scanning nearby devices, an alert “Please turn on GPS and provide Allow Location permission.” Is displayed. Users will need to turn on the device Location from the mobile settings for the DP-IR+ Mobile app.

- **Location permission alert on scanning the devices**

If the mobile device’s GPS Location is on and the user has not given the always allow location permission, on scanning for nearby devices, an alert “Application needs Always allow Location permission.” is displayed. Users will need to always give location permission from the settings for the DP-IR+ Mobile app.

- **Bluetooth and disconnected device alert on scanning the devices**

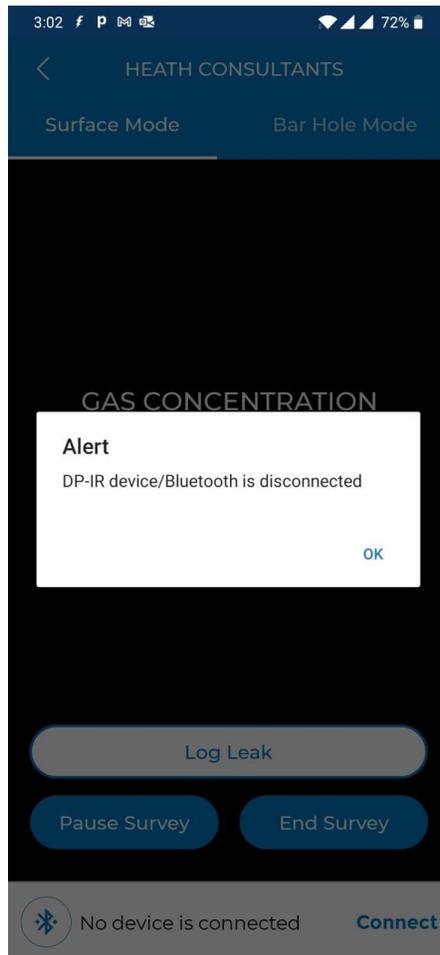
If an app is connected to the device and in between devices gets disconnected from DP-IR device or Bluetooth is turned off, an alert “DP-IR device/Bluetooth is

disconnected” is displayed. Users will need to ensure that Bluetooth is turned on and the device is connected with a DP-IR device.

## 5.2. Surface Survey Screen

### 5.2.1. Warning Alert message

During a survey, if DP-IR+ device gets disconnected, application will show an alert message on screen “DP-IR device/Bluetooth is disconnected.”



After connecting to DP-IR+ device, if for any technical reasons, DP-IR+ device hasn't started sending BLE packets and the user clicks on LOG LEAK, “No GPS coordinates captured. Please try again” message will appear.

## 5.3. About Screen

- User can navigate to this screen on tap of info icon present on top right corner of each screen.
- User can see below items on the screen
  - Heath Logo
  - Application version
  - User Manual Link.
  - Privacy Policy Link
- On click of User Manual link and Privacy Policy respected user Guide will open in PDF format inside the application

