



LORAWAN ON ASPHALT PARKING SENSOR Installation Manual

TABLE OF CONTENTS

1. Safety and warnings
2. In the set
3. Ground installation
4. Post-installation steps
5. Detection setup
5. Network setup
6. Payload

SAFETY AND WARNINGS

Prior to installing and configuring the Parkdroid Smart Parking Sensor, read these instructions carefully and follow them accordingly. Before the installation, the parking place must be free from any metallic objects, dirt, water, snow, and other contaminants.

Only qualified persons are authorized to install and configure Parkdroid products.

Inappropriate opening of the products is prohibited.

IN THE SET:

1x Parkdroid Sensor
1x Parkdroid Surface Ring
2x Dowels
2x Surface Screws

REQUIRED:

1x Magnet
1x Drill (16 cm length, 8mm circumference)
1x Drill (16 cm length, 12mm circumference)
1x Perforator (for working with concrete, brick, stone and other materials)
1x Cross-headed screwdriver
1x Hammer with rubber top
1x Measuring tape
1x Pencil

YOU WILL NEED:

Parkdroid APP



Available in the
GooglePlay store

Mobile Application:

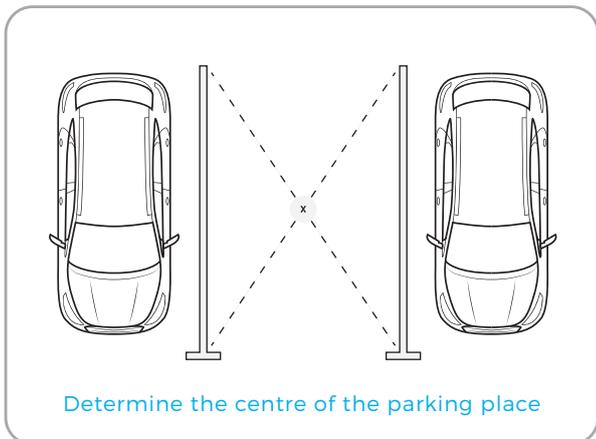
<https://www.androiddev.lv/apk/?app=bt-sensor>
(password of mobile application: 1234)

LoRaWAN gateway



With a stable
connection

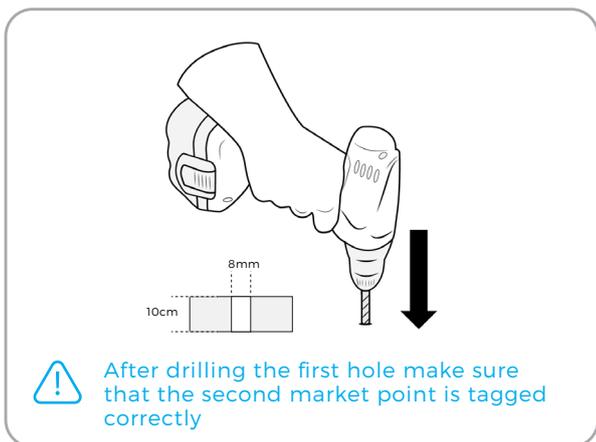
GROUND INSTALLATION



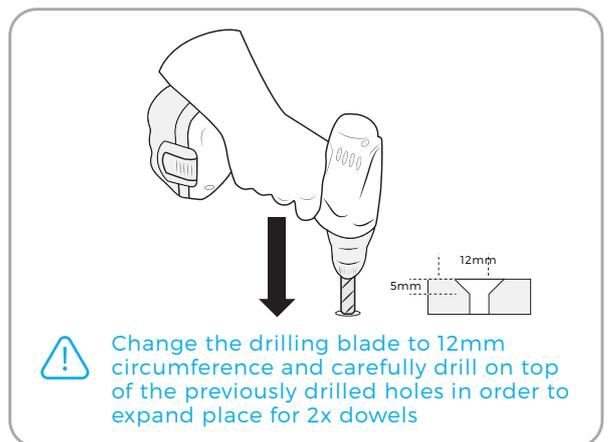
Prepare the parking place



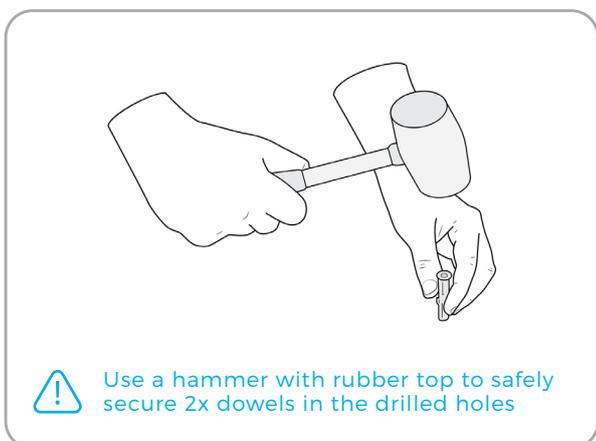
Mark drilling points



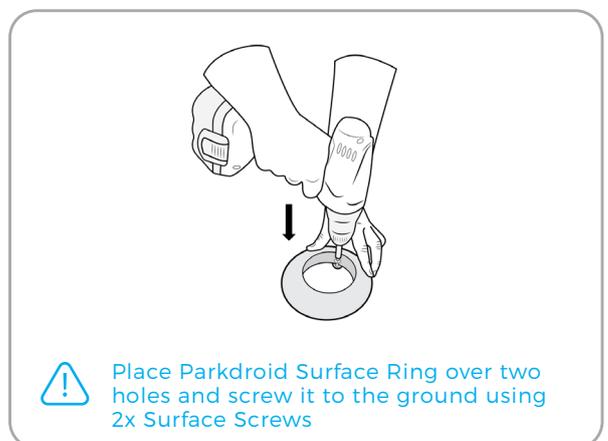
Drill two 10cm x 8mm holes



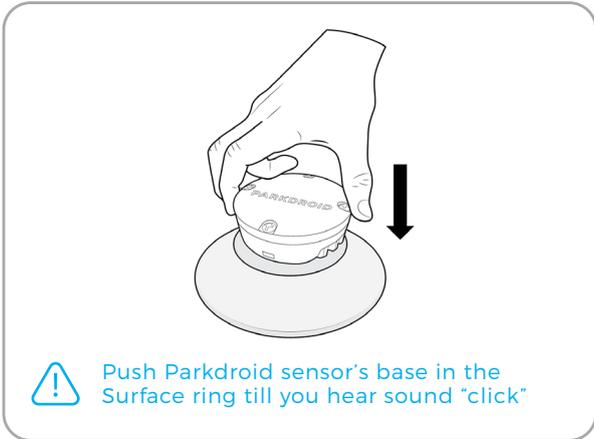
Free up space for 2x dowels



Put 2x dowels in previously drilled holes



Fix the Parkdroid Surface Ring



Put the Parkdroid Sensor in the Surface Ring

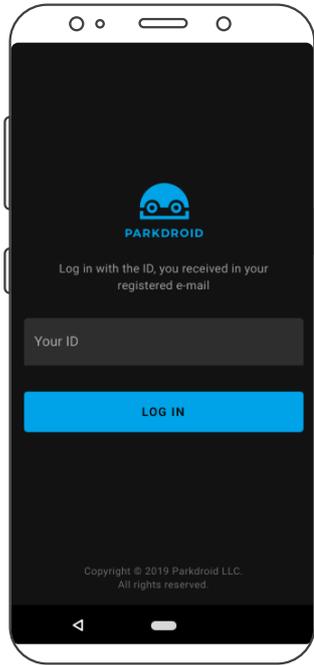
POST-INSTALLATION STEPS

After successfully installing your Parkdroid sensor it is time to activate it. For the next steps you will need:

1. Android device with installed Parkdroid APP
 2. Magnet
 3. Working LoRaWAN gateway with stable network connection
- 
- A decorative graphic consisting of several overlapping, wavy, light gray shapes that create a sense of movement and depth, located in the lower half of the page.

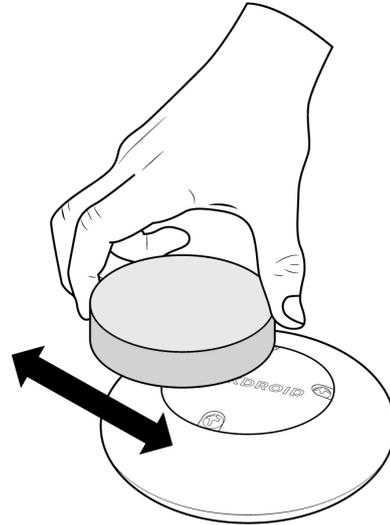
POST-INSTALLATION STEPS

Open Parkdroid APP



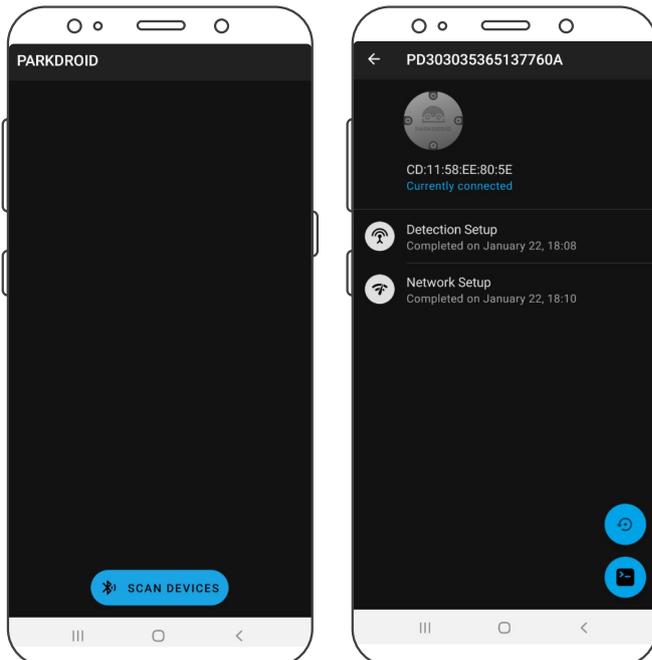
⚠ Login in your account provided upon your purchase

Briefly wave a magnet over previously installed Parkdroid sensor



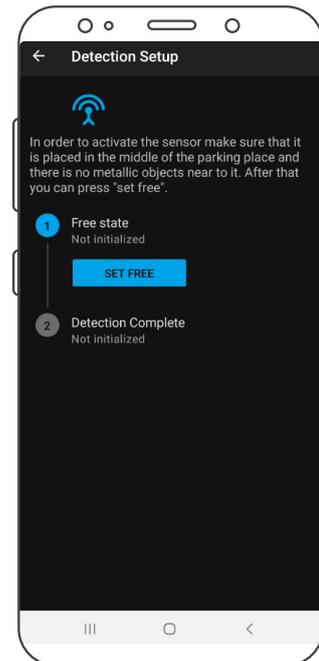
⚠ This will turn on Parkdroid's Bluetooth and allow configuration

Press "Scan Devices" and connect to your Parkdroid



⚠ You will recognize your Parkdroid's ID from the information on the sticker located on the packaging box

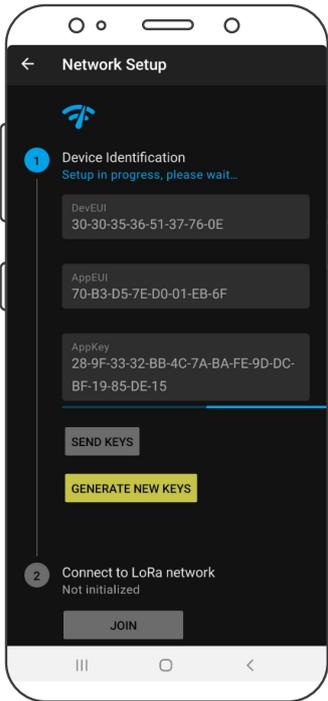
Complete "Detection Setup"



⚠ Before initiating "Set Free" make sure that there are no metallic objects on the parking place

NETWORK SETUP

To establish a successful connection between Parkdroid Sensor and LoRaWAN gateway it is necessary to identify each sensor's network keys (DEV EUI, APP EUI and APP KEY) and set them accordingly on the IoT platform of your choice. Before proceeding make sure that your LoRaWAN gateway is connected to the network server and has an RSSI reading of -90dBm when no metallic objects are on top of the parking place.

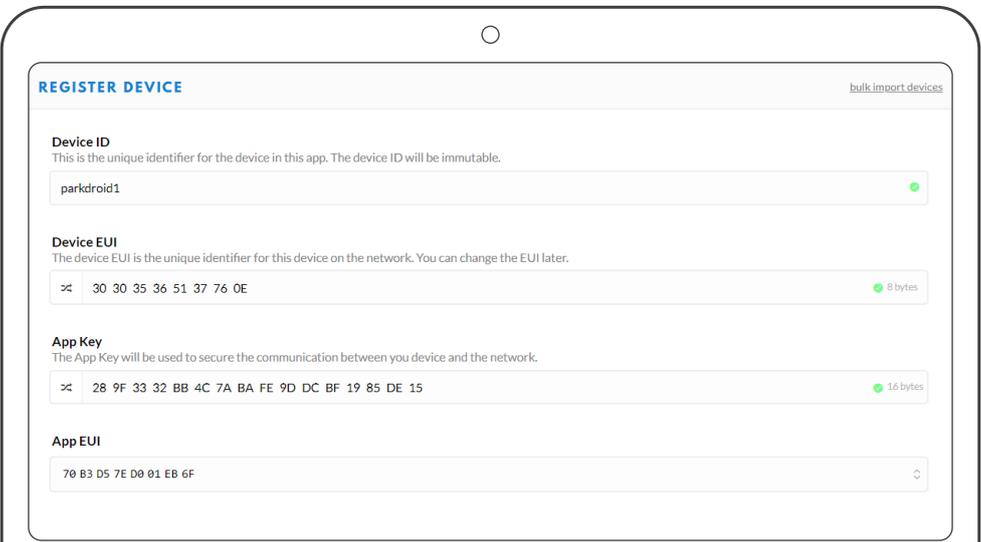


The smartphone screen displays the 'Network Setup' interface. It features a blue LoRaWAN icon at the top. Below it, a progress indicator shows '1 Device Identification' with the status 'Setup in progress, please wait...'. Three input fields are visible: 'DevEUI' with the value '30-30-35-36-51-37-76-0E', 'AppEUI' with '70-B3-D5-7E-D0-01-EB-6F', and 'AppKey' with '28-9F-33-32-BB-4C-7A-BA-FE-9D-DC-BF-19-85-DE-15'. Below these fields are two buttons: 'SEND KEYS' and 'GENERATE NEW KEYS'. At the bottom, a second progress indicator shows '2 Connect to LoRa network' with the status 'Not initialized' and a 'JOIN' button.

Device Identification

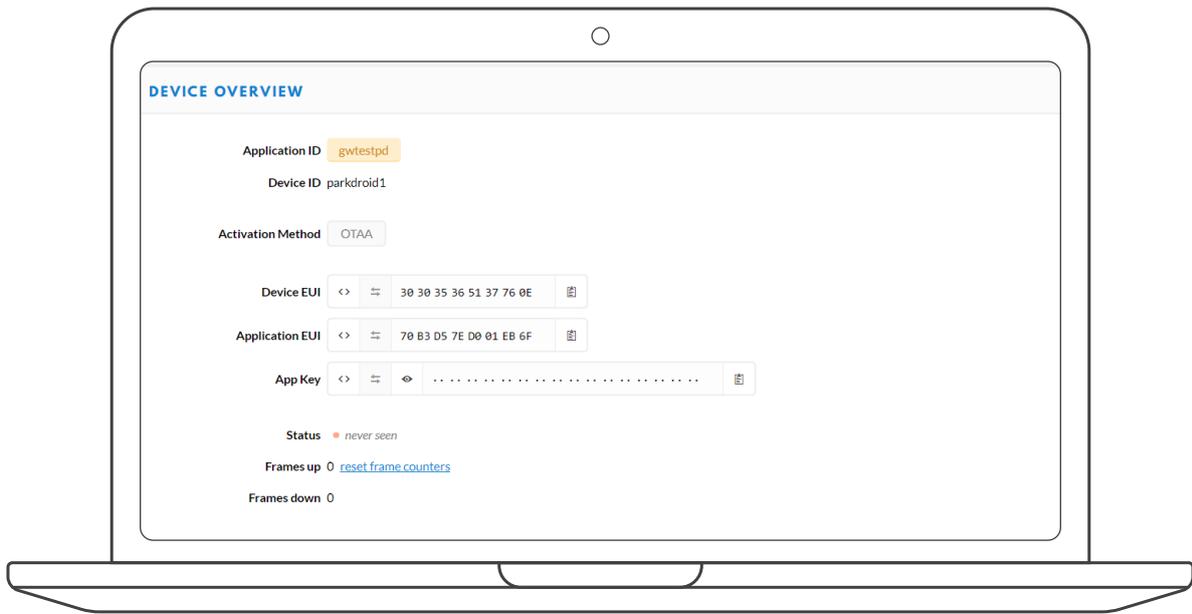
 To connect Parkdroid to the LoRaWAN network you can use already pre-configured device identification keys or change them to your preferred ones

Creating a new device in IoT platform



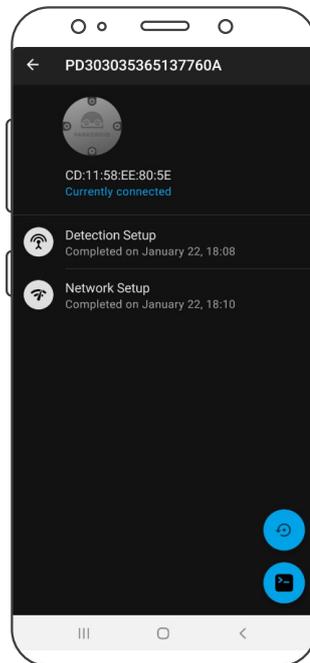
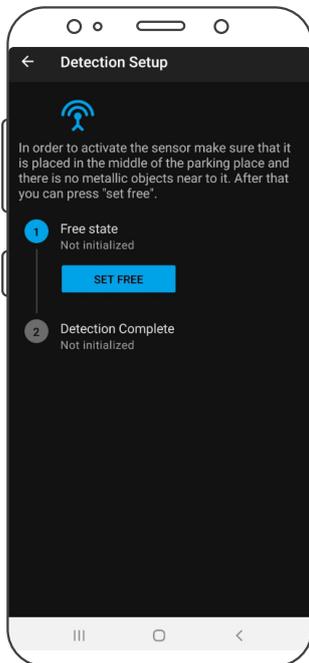
The laptop screen displays a 'REGISTER DEVICE' form. It includes a 'bulk import devices' link in the top right. The form contains the following fields:

- Device ID**: This is the unique identifier for the device in this app. The device ID will be immutable. Value: parkdroid1
- Device EUI**: The device EUI is the unique identifier for this device on the network. You can change the EUI later. Value: 30 30 35 36 51 37 76 0E (8 bytes)
- App Key**: The App Key will be used to secure the communication between you device and the network. Value: 28 9F 33 32 BB 4C 7A BA FE 9D DC BF 19 85 DE 15 (16 bytes)
- App EUI**: Value: 70 B3 D5 7E D0 01 EB 6F



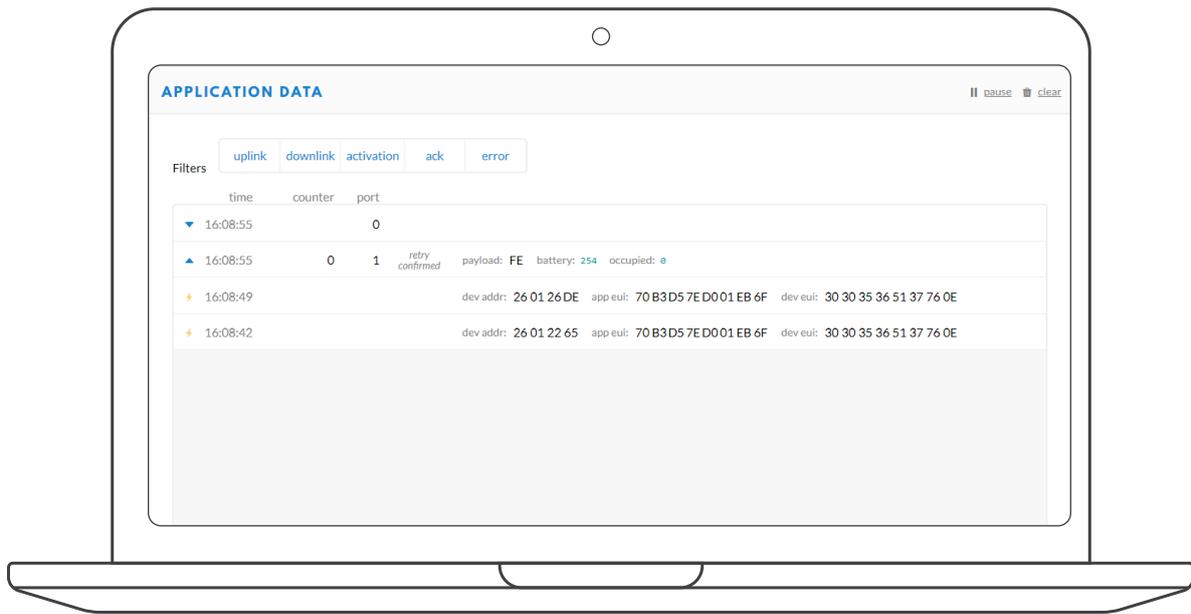
Use previously set Device Identification keys and add a new device to the network

Connect to LoRaWAN network



Once you have successfully set network keys for your Parkdroid sensor and added a new device to IoT platform you can continue by joining LoRaWAN network

Join Request



Parkdroid sensor will automatically send "Join Request" to LoRaWAN network

PAYLOAD

```
Function Decoder (bytes, port) {  
  // Decode an uplink message from a buffer  
  // (array) of bytes to an object of fields.  
  var decoded = { };  
  
  if (port === 1) {  
    decoded.occupied = bytes[0]&0x01;  
    decoded.battery = bytes[0]&0xfe;  
  }  
  
  return decoded;  
}
```