

Android Application uRAD USB

Overview

A mobile application has been programmed for using your uRAD USB with your Android phone. This makes uRAD a portable radar that you can carry on with you for measuring everywhere. The app is delivered with the purchase for free.

Connecting the Phone

uRAD has to be connected with your mobile phone by a USB cable. You need a USB On-The-Go (OTG) cable to connected uRAD with your phone. With this kind of cable your phone will be able to manage uRAD as a peripheral device.



WARNING: a regular male-to-male USB cable is not useful for using uRAD with your mobile phone.

Usually, USB OTG cables are male-to-female but your phone and uRAD have female connector. Therefore, you probably need another USB regular cable female-to-male to connect the USB OTG with uRAD.

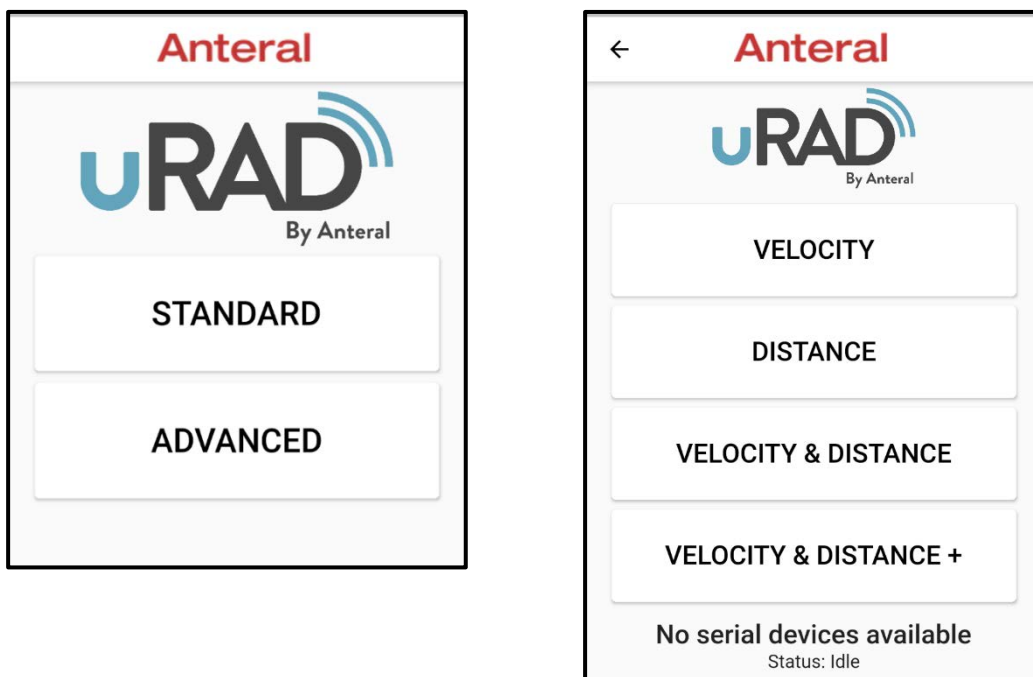
In the following image an example of connection is shown.



Use of the App

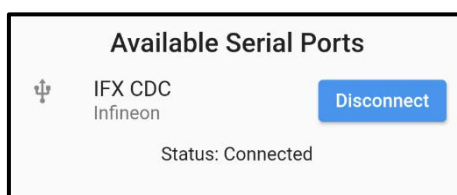
With the application, uRAD is used very similar to how it is used with the Graphical User Interface of PC, except it is only possible to visualize the results table. The IQ and FFT plot are not shown in the application.

When the application is launched, in the first window the operation mode is selected: **Standard** or **Advanced**. Both modes allow you to measure using the four modes of uRAD: mode 1 for velocity, mode 2 for distance, mode 3 for velocity & distance and mode 4 for velocity & distance + (read User Manual for more information).

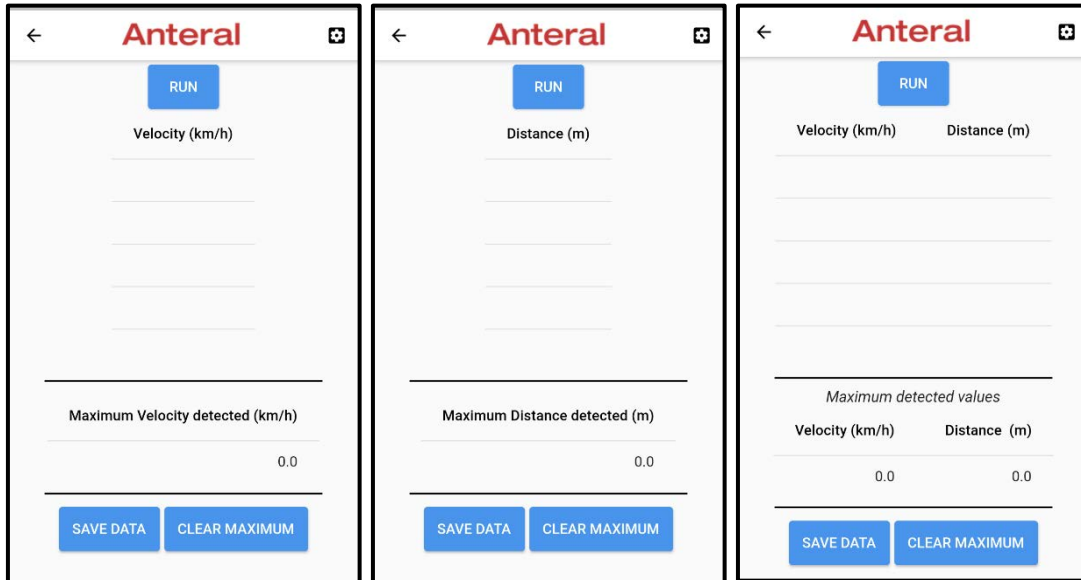


The difference between **Standard** and **Advanced** mode are the configuration parameters. With the Standard mode you can only select the number of targets to be detected (**Ntar**) and the sensitivity (**Alpha**). With the Advanced mode you can set all configuration parameters of uRAD.

While the hardware is not connected, **No serial devices available** is shown. Once you connect uRAD, the application automatically recognized the sensor and allows you to **Connect** and **Disconnect**.



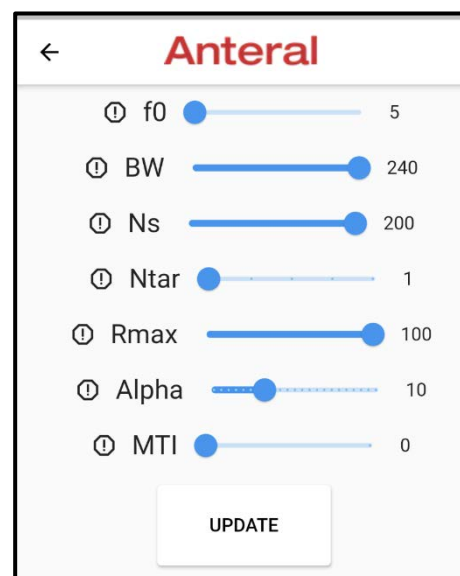
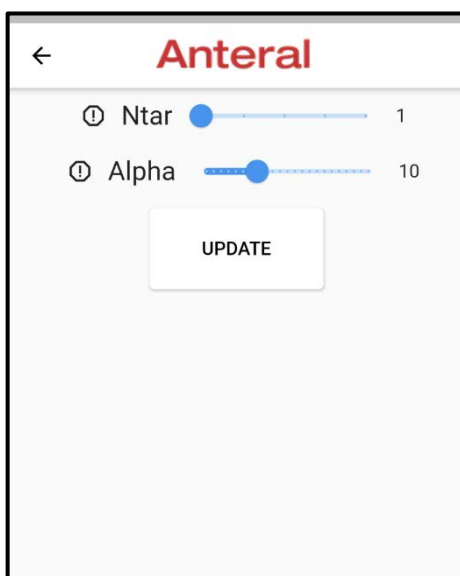
Hardware has to be connected to be able to visualize the results windows. Depend on the measuring mode the result window shows velocity table, distance table or both.



With **Run** button, uRAD starts measuring and with **Stop** button, the radar stops. This window automatically shows the maximum detected values that can be cleared with the corresponding **Clear Maximum** button.

With the **Save Data** button, you can save in a .txt file the measuring results. Explore your file folders inside you phone. The application creates a folder named uRAD where all .txt are saved. These files are not overwritten, new data are added at the end of the file.

Finally, in the top right corner, pushing the wheel, the configuration window is shown. Depend on whether Standard or Advance mode is selected, the configuration is different, as described before. **Update** button has to be pushed to apply any change.



Example of Use

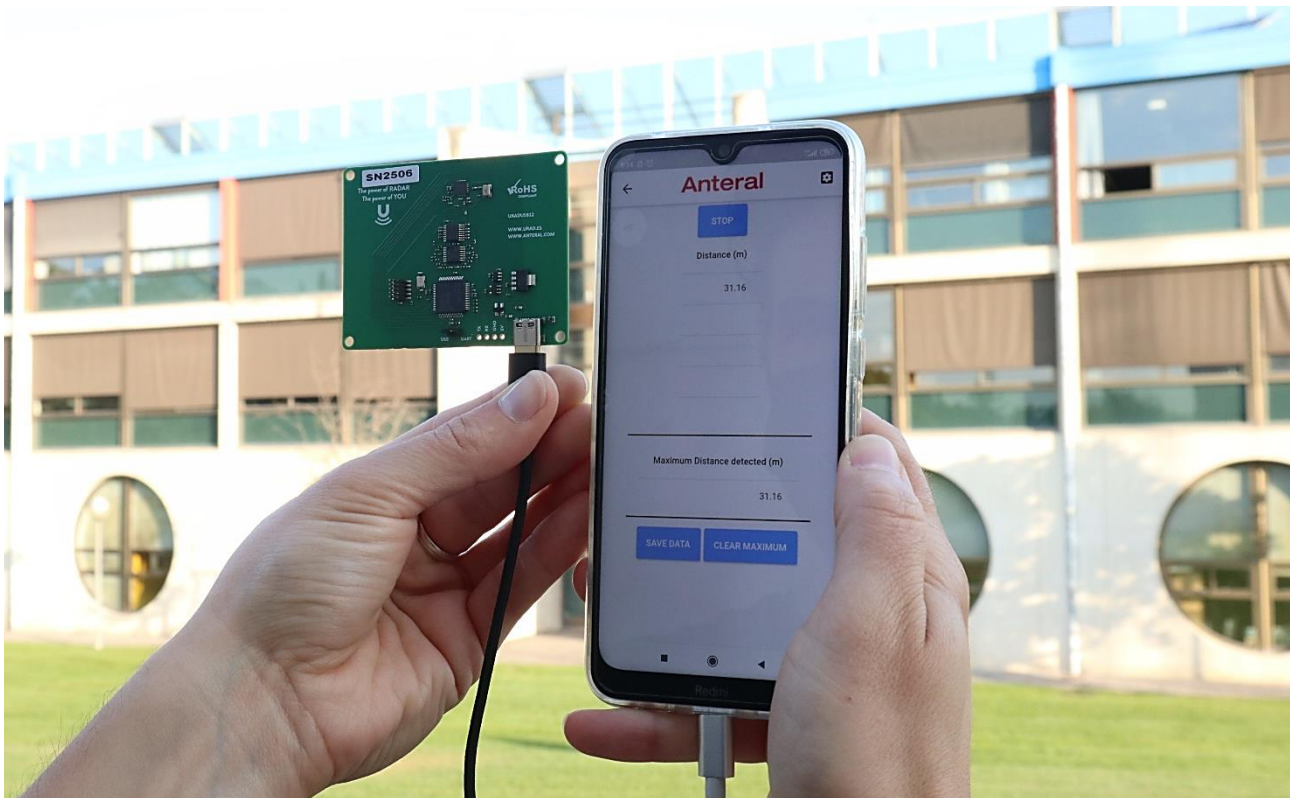
Using uRAD as a portable radar can be very useful for many applications. Here we present two of them.

- **Distance meter**

Aim the antenna face of uRAD to the surface/element you want to measure, as much perpendicular as possible to maximize reflection.

Select **Standard** mode → **Distance** and in the configuration parameters, **Ntar** = 1 and a value of **Alpha** around 10. Decrease Alpha to increase sensitivity if you are not able to detect the distance, in the case the element is very far from you.

In the following image, uRAD is measuring the distance to building in front of it.



- **Velocity meter**

As a velocity meter, in a similar way of the previous case, aim with the antennas to the vehicle you want to measure. It usually better to detect the vehicles from the rear part because the reflection is higher.

For measuring only velocity, select **Velocity** mode. If you want to measure distance and velocity, **Velocity & Distance +** mode is recommended. It is very important to set the most suitable value of **Alpha** that minimizes false or unreal detections. It is also very important to activate **MTI** (moving target indicator) in the configuration parameters for this second mode. To do this, you have to be in **Advanced** mode.

Start with a value of **Alpha** around 20 and change it according to the observation in the tests. If the vehicles are not detected, decrease the value. If unreal values, such as very high velocities, are detected, increase the value.

The following image shows an example of use measuring distance and velocity in a typical city road.

