

## CREDO Detector

### HOW TO

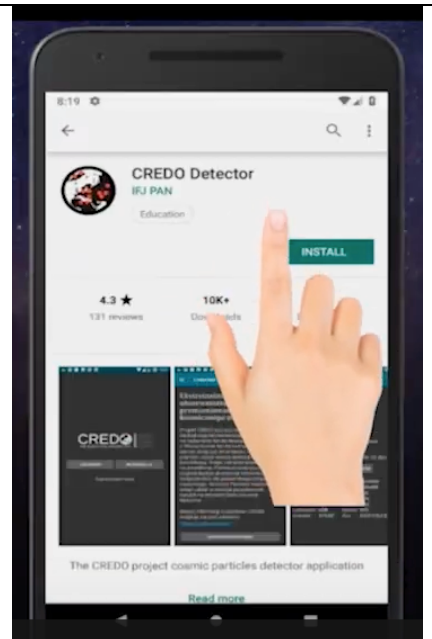
Additional info at: <https://credo.science/data/ENG-UserGuide.pdf>

#### PHONE REQUIREMENTS

- Android, version 4.0
- Working camera

#### SETP 1

Go to the Google Play store and download the **CREDO Detector** App



#### SETP 2

Register.

**INFO REQUESTED:**

- **Login** (username) **DO NOT USE YOUR EMAIL HERE!**
- **Email**
- **Password (twice)**
- **Display name** (for the public)
- **Team: choose Transglobal Expedition**



#### SETP 3

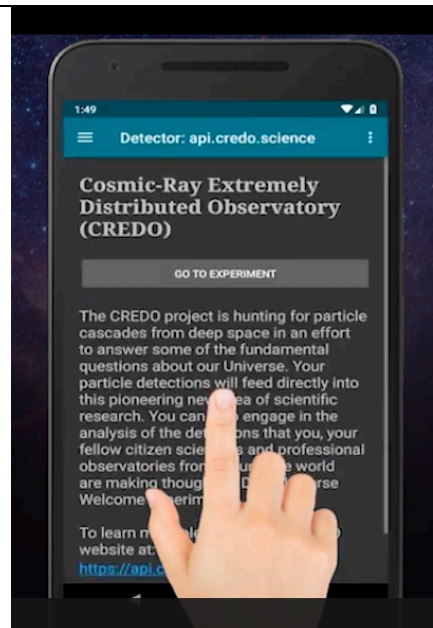
You will receive a activation email. Click on the activation link.

#### STEP 4

Set your phone Permission. Make sure to grant the CREDO app permissions for **camera** and **location** at: *settings -> Applications -> CREDO -> Permissions*

#### STEP 5

Go to experiment

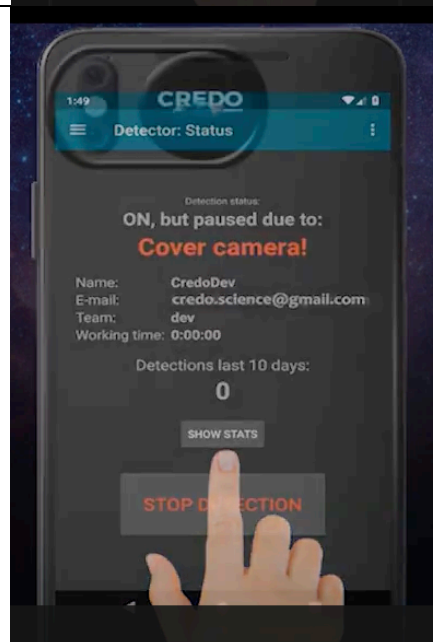


#### STEP 6

Remember to **COVER THE CAMERA** to eliminate the background noise.

*The recommended, easiest and least problematic way to obscure the camera is to use a **fridge magnet** by placing it between the lens and the case (see photo opposite).*

*An alternative way is, for example, to use a **piece of black tape or cardboard**.*

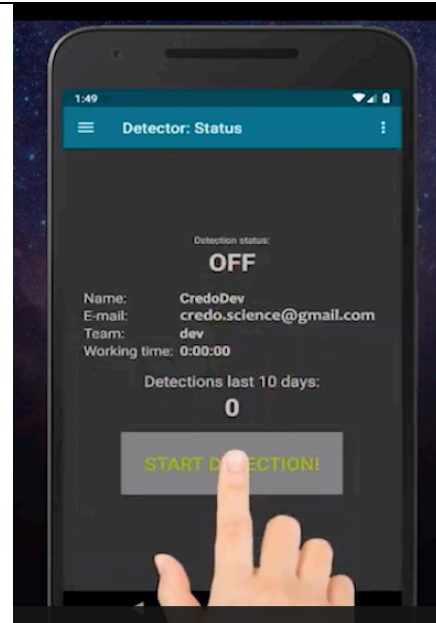


## STEP 7

Start detection.

**OPTIMAL DATA TAKING: at night, with phone connected to charger.**

- The application cannot run in the background, you need to stop it if you want to do something else.
- The application consumes energy at a similar level to using the camera/camera (in movie recording mode). Because of this, rapid battery consumption occurs, so it is recommended to connect the device to a charger.
- WIFI use
  - If Wi-Fi: Communication with the base (sending detections) is every 10 minutes
  - If not WIFI: data are saved in the memory. After 10 days, the images are deleted from the device's hard drive.



### \*\*\* COMMON PROBLEM: WARNING COVER CAMERA \*\*\*

The most **common problem** is the message WARNING COVER CAMERA REASONS

It appears at the stage of checking the correct camera coverage and is caused by the failure to meet the requirements and conditions necessary to consider the lens as covered. The object is considered unobscured when the received frames from the camera are not dark enough. Sometimes on some models the problem arises when you use the option "use full resolution" in such a case the reason is: the limitations of the device and its components, or more precisely, too long time to analyze the entire frame at high resolution.

#### SOLUTION

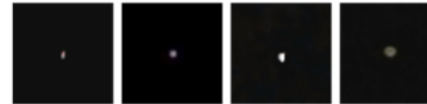
The following solutions are for cases where are 100% sure that the rear camera is covered by an impervious material. After each step, go back to the detector, turn on detection and see if the "cover camera" problem still appears. First, go into the app settings and check if you have the "use full resolution" option turned on. - if so, turn it off.

The next step, which can help solve the problem, is to change the values of the following variables in the application settings:

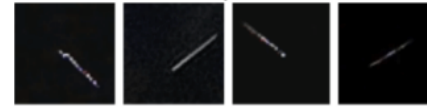
Average factor, Black Factor - increase the values keeping in mind, however, that increasing these values too much will make the application start detecting background and noise from the device.

Black count - manually set a low value, e.g. 0, 10.

MOST COMMON SHAPES OF GOOD PARTICLE TRACES



(a) spots



(b) tracks



(c) worms

EXAMPLES OF BAD TRACES ARTIFACTS

