PARCELCUBE VISION MANUAL

Unpacking the Parcelcube Vision system

ASSEMBLY INSTRUCTIONS FOR PARCELCUBE VISION SYSTEM.

1. Lift of the top of the box.
2. Remove interior support structure

3. Lift out scale platform and camera assembly

4. Install the camera mount with the 4 included screws.
5. Un-do the big screw and pull the top of camera mount up so camera is about 90cm over scale top, **tighten the screw**

6. Attach USB cable to designated computer and camera ethernet to POE enabled Switch in your network. **If you run with POE injector,** attach Camera rj45 to POE injectors POE rj45 and computers rj45 or your local network to POE injectors LAN. Computer connected directly to camera via POE injector can run with automatically being assigned IP address or fixed IP address and internet sharing on, so camera is assigned IP address. See Appendix 1 Consult your IT department for network configurations. Camera is configured to receive DHCP address.
7. For software installation and usage please see coming pages.
8. See parcelcube.com support section for videos.

PLACEMENT AND USAGE.

Important information regarding placement and operations.

Parcelcube Vision system implement two camera systems, RGB (color) and a Laser based camera. Both cameras might be affected by everchanging light conditions.
To limit environment light condition issues, observe the following.

1. Do not place the Parcelcube Vision in a way that expose it to sunlight from for example windows. Light level will change with sun / day cycle.
2. Do not place the Parcelcube Vision where the lightning is un-even, so it causes shadows to be casted from measured object itself or from staff operating the Parcelcube Vision.
3. Do not stand to close to The Unit when doing the measurement. To make sure you do not cast shadows / cover up lights or effect the weight by touching the scale.
4. Parcelcube Vision is to be used in indoor environments, well away from outdoor light environment.
5. Make sure the unit is placed on a work surface that is free from items that might interfere with the measurements.
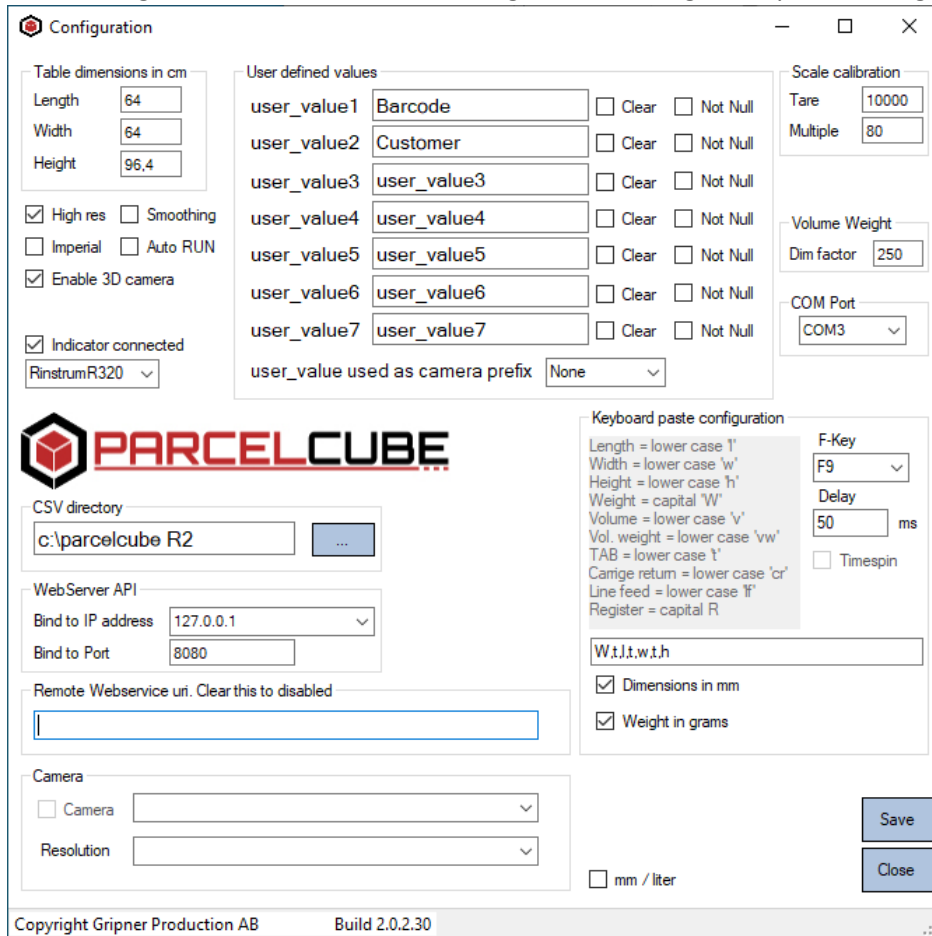
Software installation - Parcelcube R2 client & Vision software

1. Download software package from www.parcelcube.com menu option Service.

2. Extract the files to C:\Parcelcube R2 so you end up with a directory structure like this
   C:\Parcelcube R2
3. Run the setup file under C:\Parcelcube R2
4. Click install button on the Application Install – Security Warning
5. Once the install is done you are presented with the Parcelcube R2 window.

Software Configuration Parcelcube R2 client

1. Enter administration mode by selecting the menu Edit -> Admin login, password is **dimwei**
2. Enter configuration via menu Edit -> Configuration. Configure as per the image below.
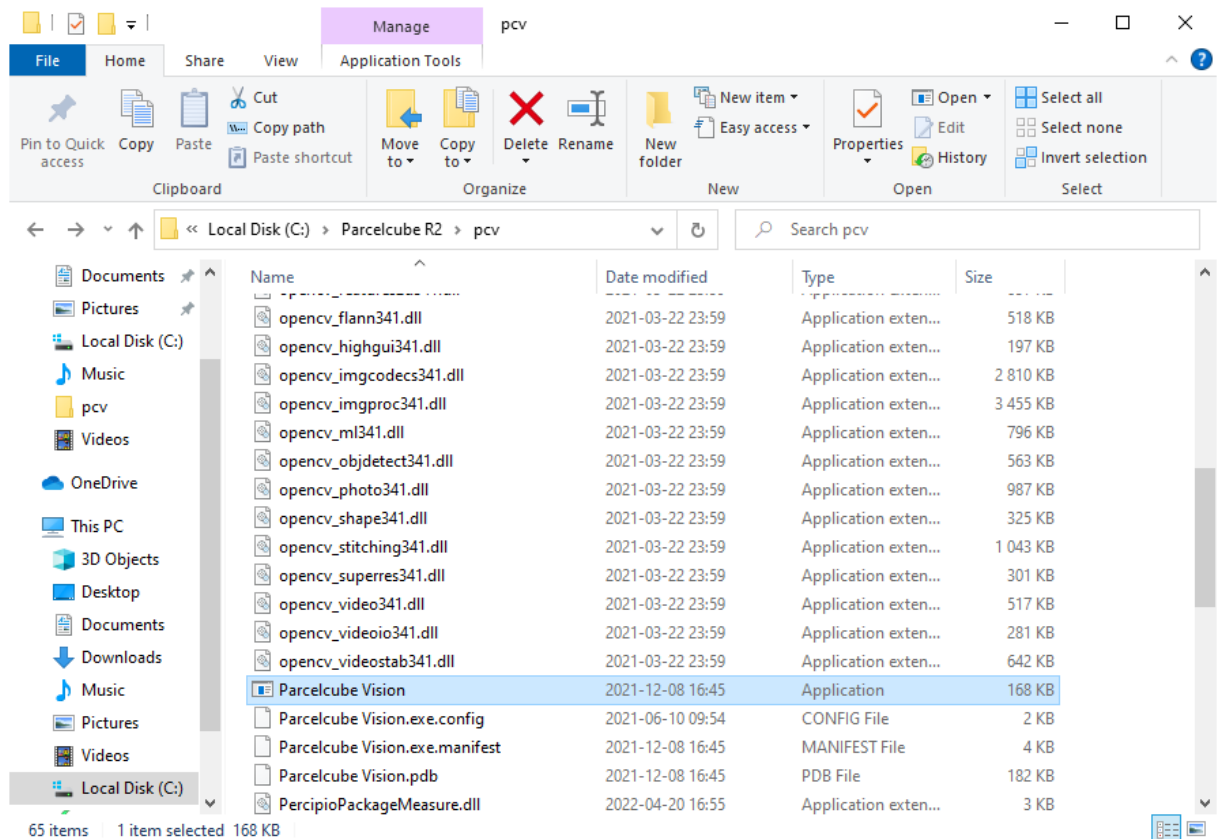

Click save and ok on the request that pops up. Close the configuration window.
Additional information can be found in the Parcelcube 900 Manual see www.parcelcube.com
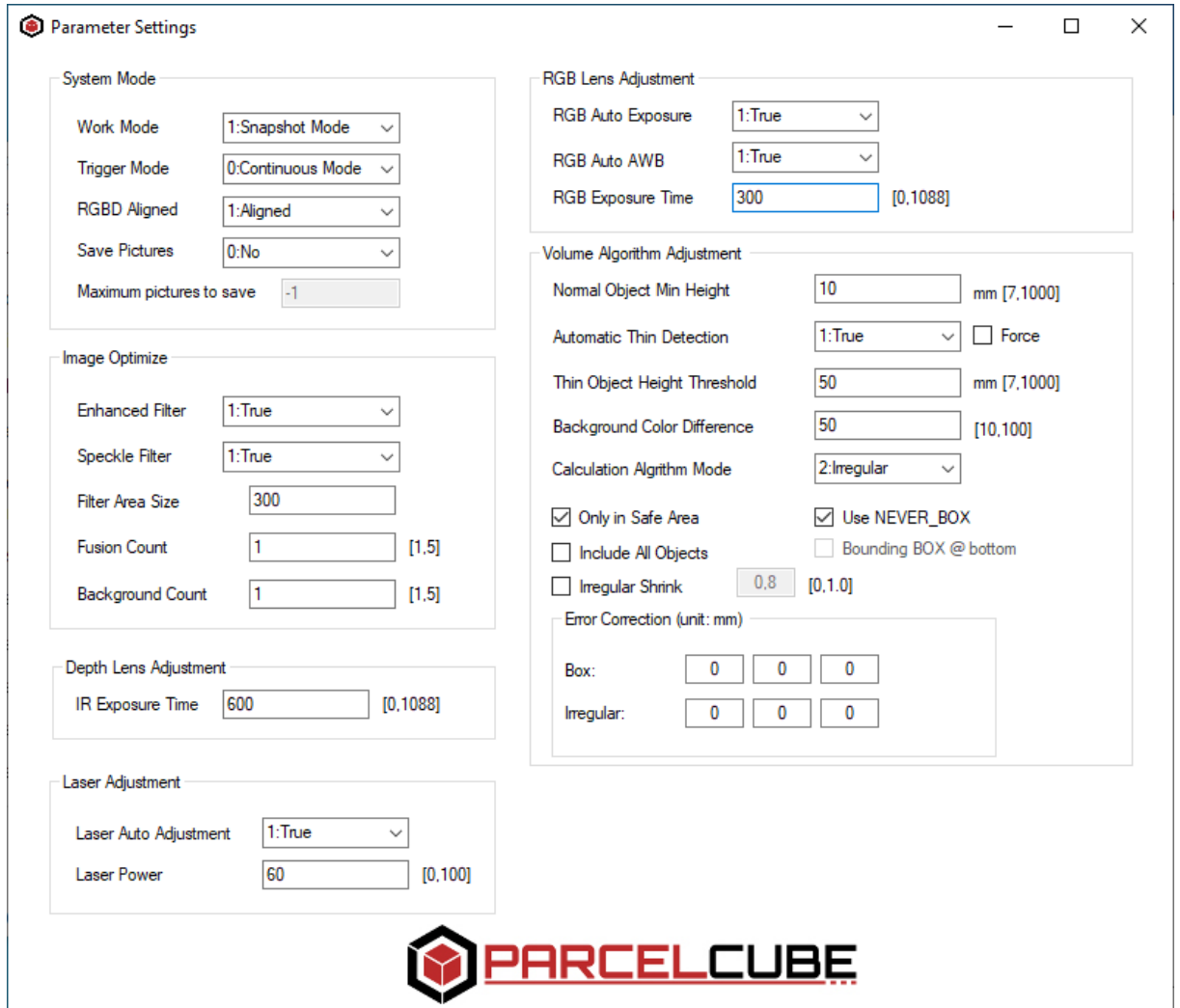
3. Click Run in the menu. It now reads Running. Proceeded to set up the Vision system.

Software Configuration Vision software

1. Navigate to C:\Parcelcube R2\pcv and run Parcelcube

2. Once application starts up click Configure System

Parameter Settings

System Mode

Work Mode	1:Snapshot Mode
Trigger Mode	0:Continuous Mode
RGBD Aligned	1:Aligned
Save Pictures	0:No
Maximum pictures to save	-1

Image Optimize

Enhanced Filter	1:True
Speckle Filter	1:True
Filter Area Size	300
Fusion Count	1 [1,5]
Background Count	1 [1,5]

Depth Lens Adjustment

IR Exposure Time	600 [0,1088]

Laser Adjustment

Laser Auto Adjustment	1:True
Laser Power	60 [0,100]

RGB Lens Adjustment

RGB Auto Exposure	1:True
RGB Auto AWB	1:True
RGB Exposure Time	300 [0,1088]

Volume Algorithm Adjustment

Normal Object Min Height	10 mm [7,1000]
Automatic Thin Detection	1:True ☐ Force
Thin Object Height Threshold	50 mm [7,1000]
Background Color Difference	50 [10,100]
Calculation Algrithm Mode	2:Irregular

☑ Only in Safe Area   ☑ Use NEVER_BOX

☐ Include All Objects   ☐ Bounding BOX @ bottom

☐ Irregular Shrink   0,8 [0,1.0]

Error Correction (unit: mm)

|			
Box:	0	0	0
Irregular:	0	0	0

3. Configure according to image above. Do not close the Configuration window. Bring the Parcelcube Vision main screen to focus.

4. Click start System and place a white A4 paper on the scale plane.
5. Now change the RGB Exposure time until you have an image with exposure close to image below, ignore the red / blue rectangles
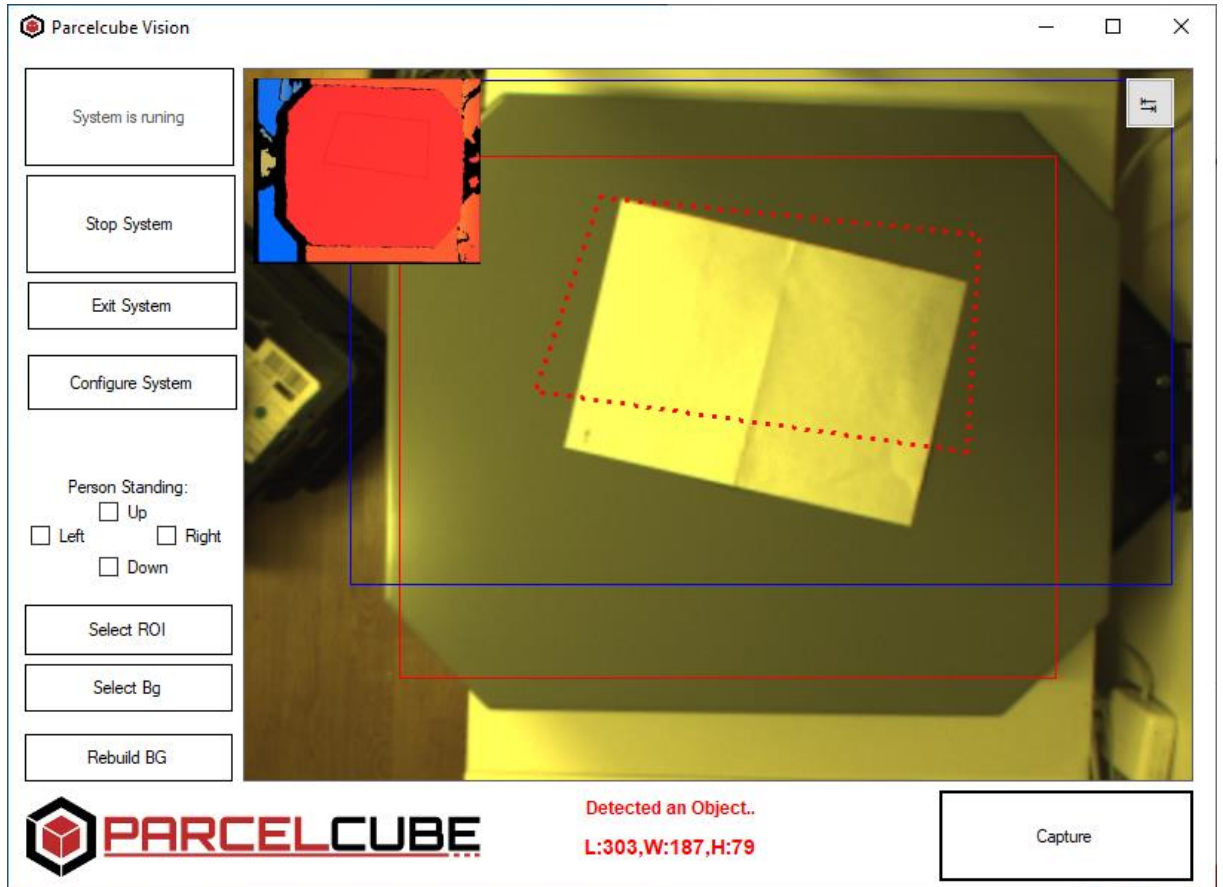

6. Once you have a setting that gives you an image similar to above, proceed to configure ROI and Bg. Close the configuration window. Remove the A4 paper

7. Click Select ROI and draw a rectangle as image belove show, then click button Click to save. Observe it's the RED rectangle that is solid.
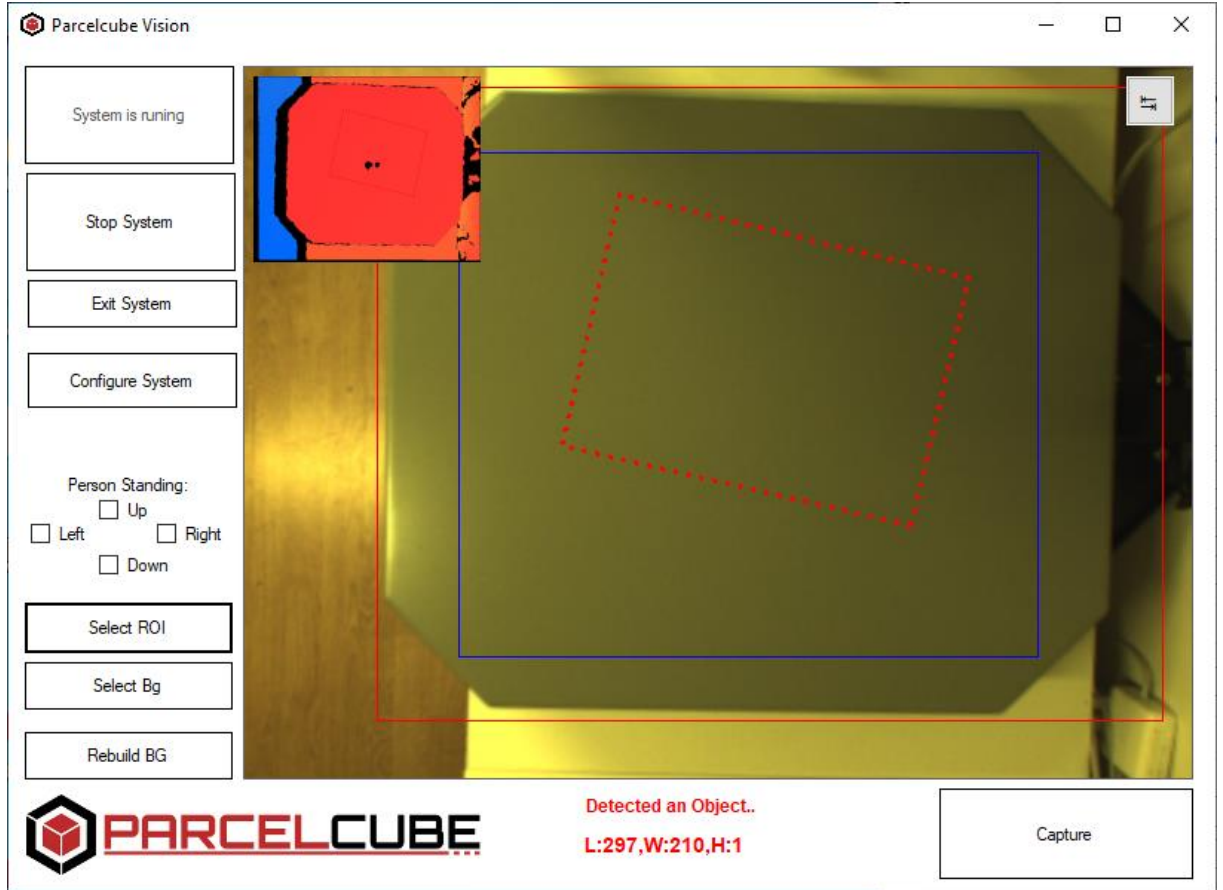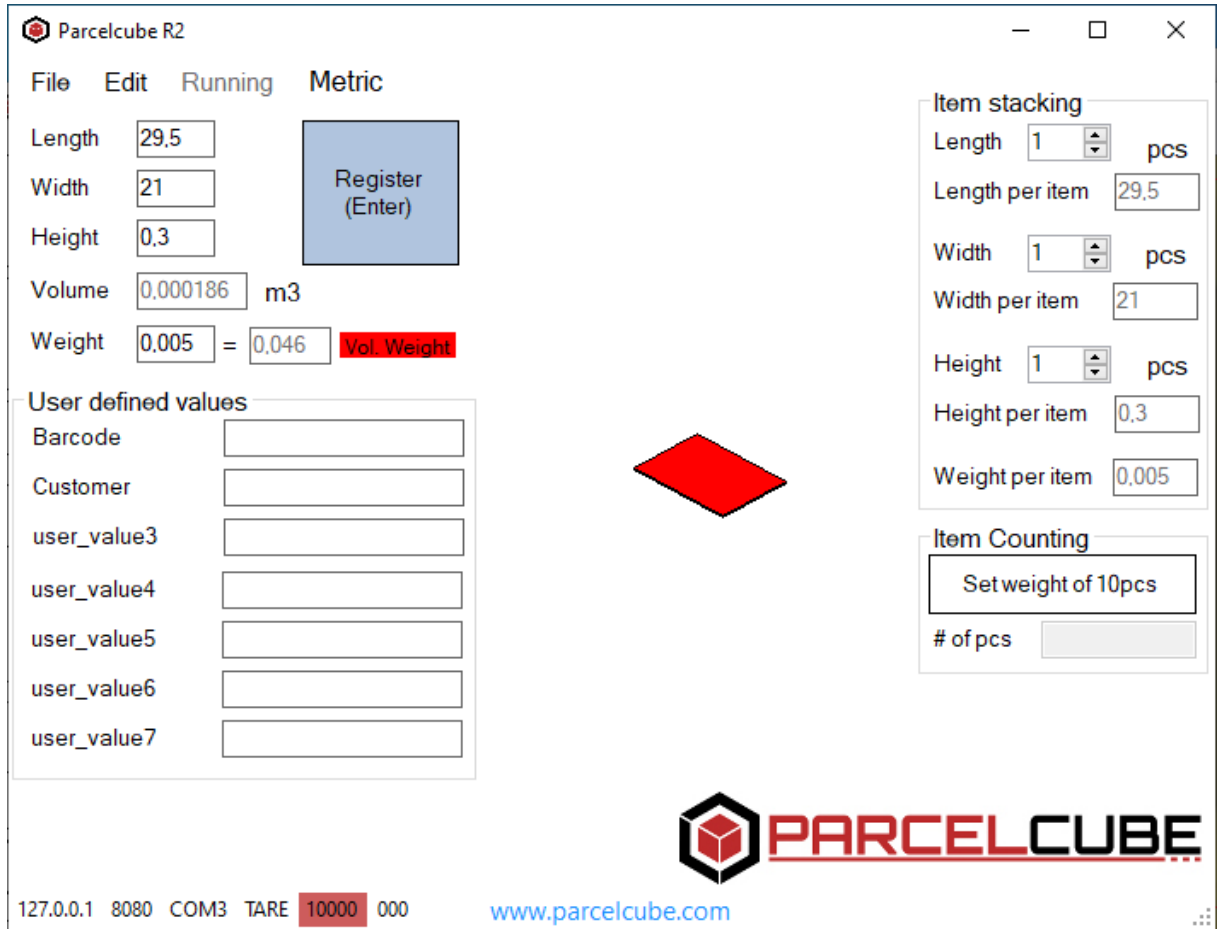
8. Click Select Bg and draw a rectangle as image belove. Then click the Click to save button. This time it's the BLUE rectangle. Any RED dotted rectangle should disappear,
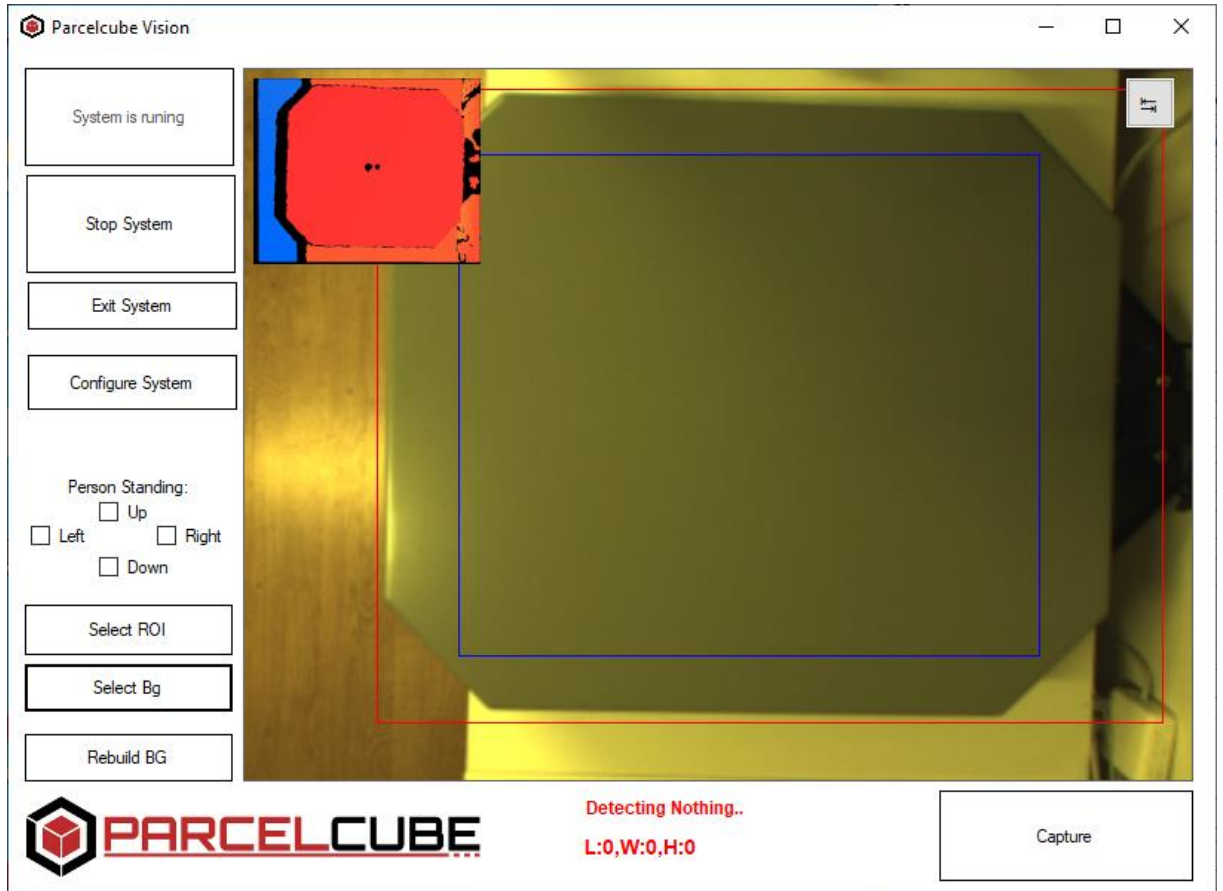
9. Place paper back on the scale and you should see a correct measurement done.
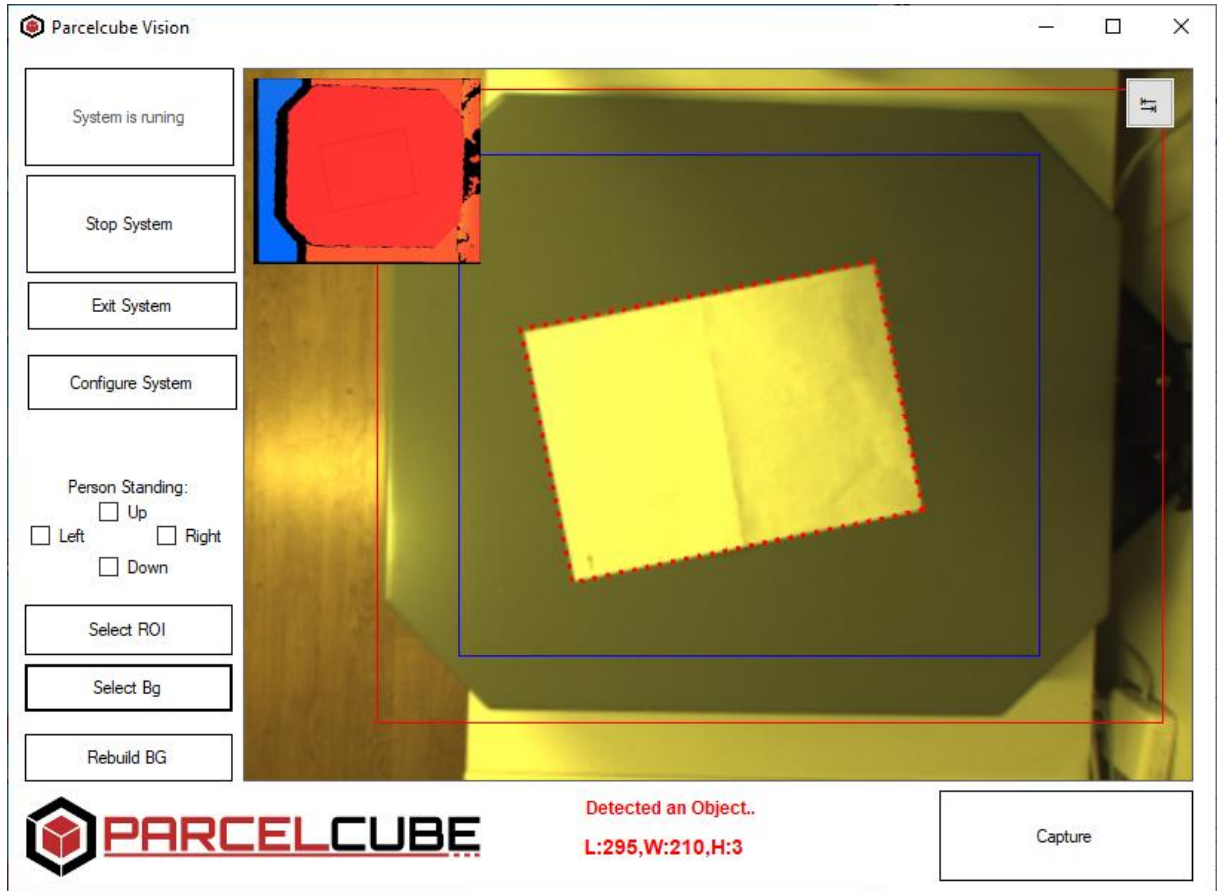
10. Bring the Parcelcube R2 client to front and you should see

Both applications need to be running during normal operations.

TIP, right click the Parcelcube software icon(s) and select pin to taskbar.

Troubleshooting

1. Clicking RUN in the menu bar (PArcelcube R2 client) result in a error opening serial port.
   - Make sure the serial port have been installed. Windows update automatically installs the drivers once USB cable is plugged in.
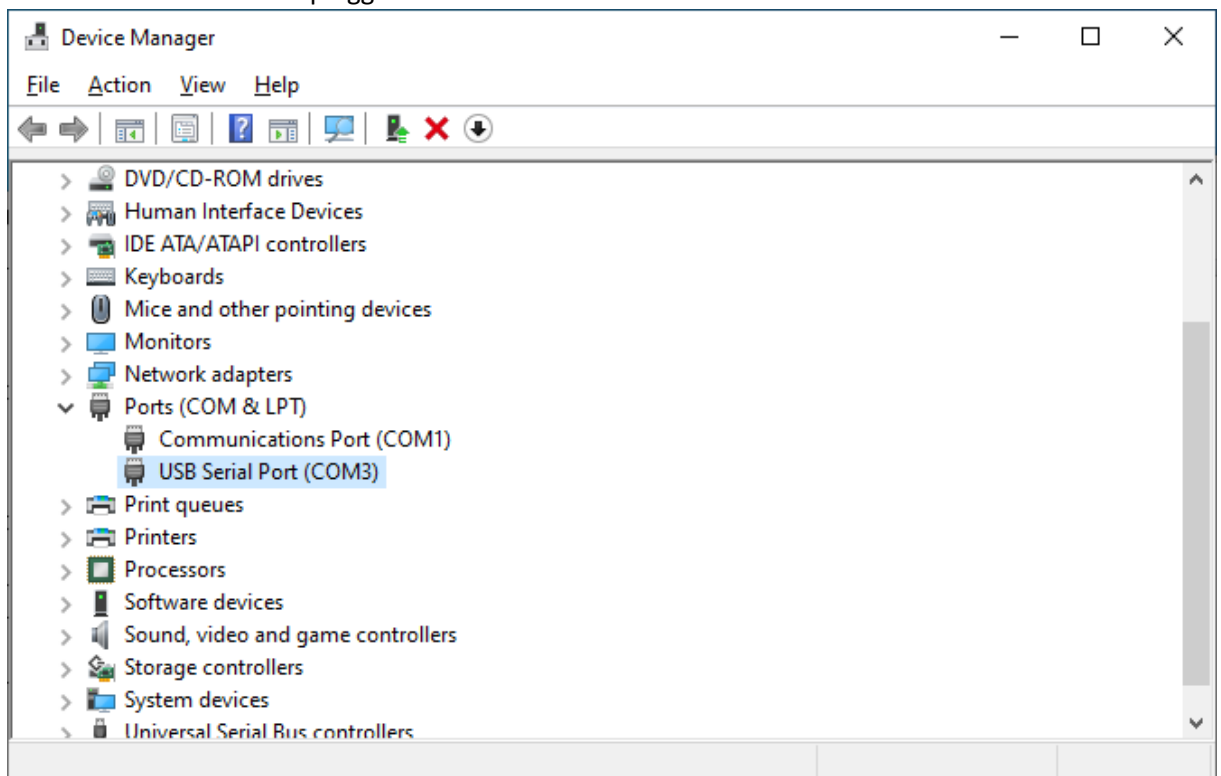

2. No weight data is displayed in the Parcelcube R2 software.
   - Make sure the indicator is turned on, make sure you have in the configuration enabled Indicator connected and selected RinstrumR320

3. When Clicking Start System on the Parcelcube Vision software it exits instead of showing camera image.
   - The Vision hardware is not connected. Please make sure you have connected according to the assembly instructions.

4. Red dotted Rectangle show up when scale is empty OR not correctly around measured object.
   - Make sure no items are littering around the unit, make sure personnel are not hindering lights or casting shadows / obstructing the measuring area. If problem remains, clear the scale and click Rebuild BG. Also make sure the red and blue rectangles are according to setup instructions.

Parcelcube Vision Software details
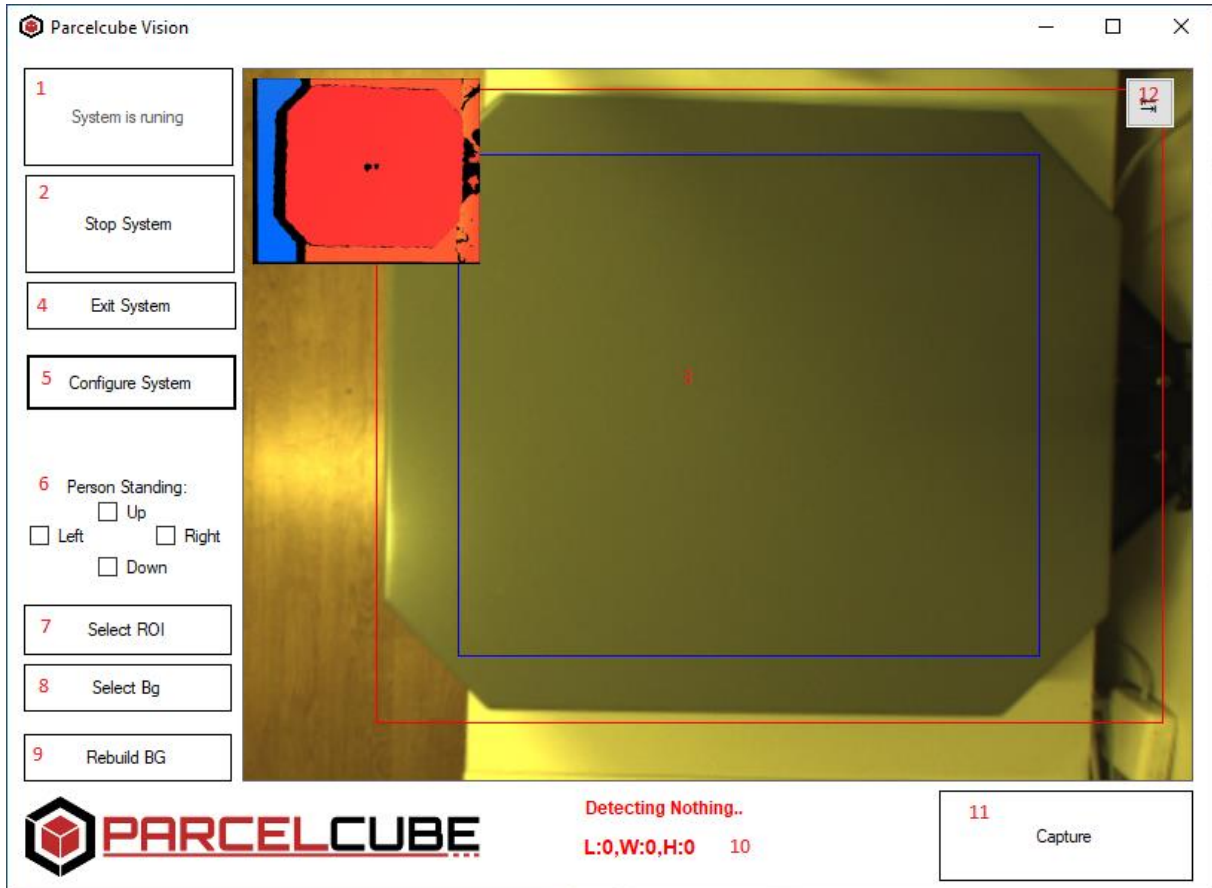
1. Start the system
2. Stop the System
3. Measuring area / display
4. Exit software
5. Enter configuration
6. Stops / enables measurements to be done if personnel is detected.
7. Sets area the system will look for objects to measure.
8. Sets calibration data for thin objects. As per current light conditions etc.
9. Recalibrates the unit, might be needed if light condition have changed.
10. Displays measurement results
11. Not used as the software captures automatically.
12. Changes between the RBG view and depth view.
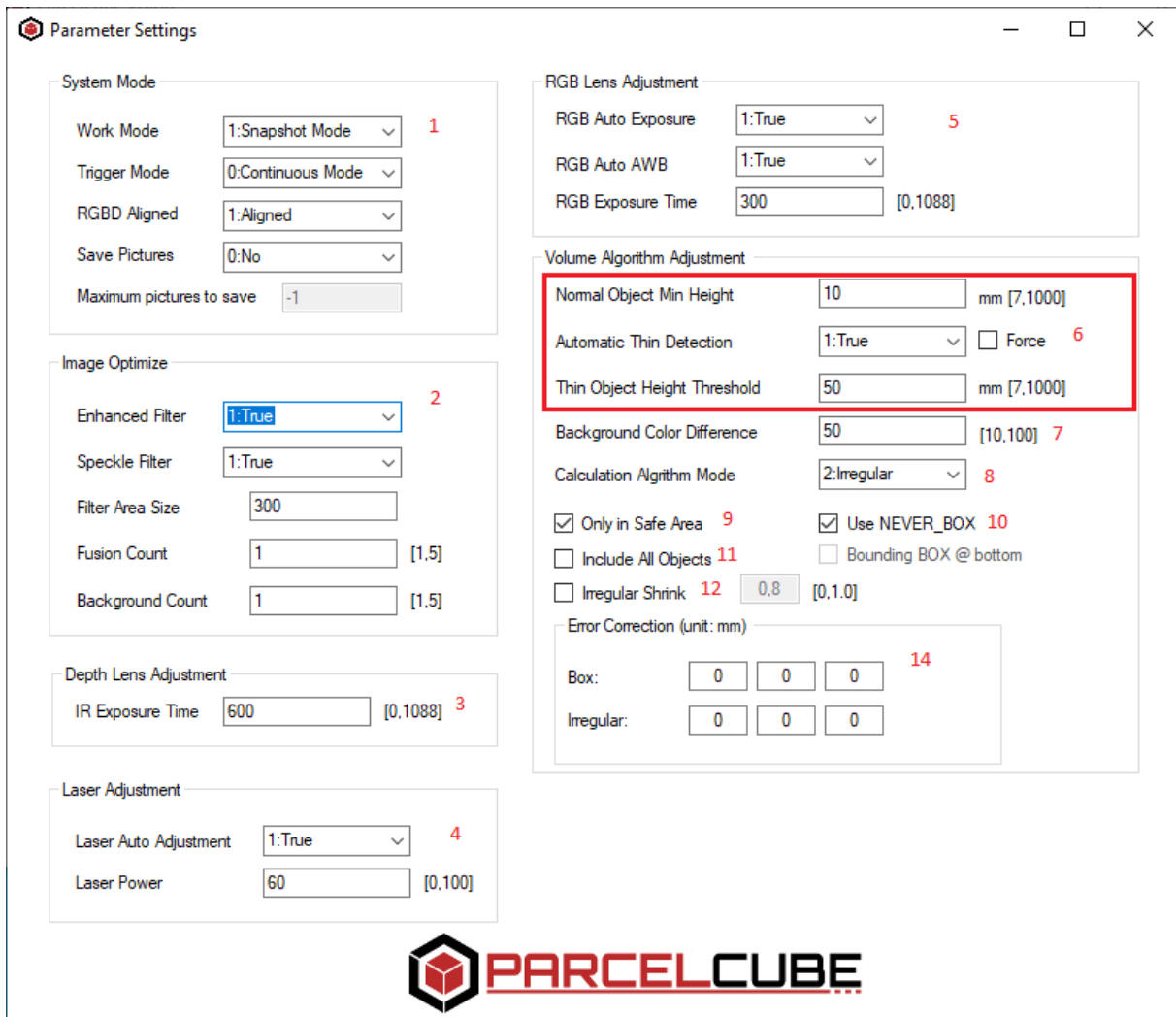
1. System operation mode, settings should never be changed unless unit being diagnosed.
2. Image optimization. This is only used in diagnostic mode.
3. IR exposure time. Lower value if objects are mostly very shiny/reflective. For normal object as is.
4. Laser strength, lower value if shiny/reflective items. For normal object leave as is.
5. RGB camera settings, RGB exposure time needs to be set to not have over exposed or under exposed images. Example on page 10
6. Settings to select camera usage, Thin Object Height threshold decide what camera is used, above the value is laser camera while below the value is RGB camera.
7. Background color difference tells the RGB camera how much color difference between scale plane and measured object. If objects measured is similar in color to the scale background the value need to be set very low. 50 is standard. Setting this value very low makes the camera more sensitive to changes in light conditions.

8. Forces the system to calculate size of objects according to it being a perfect "box" or an irregular item. Box is faster, irregular is much more precise and can do irregular shaped objects.

9. If checked only objects fully inside the Red ROI rectangle will be measured.

10. Checked to get Slower but better calculations. Must have for irregular objects.

11. If several spaced out objects are placed on the scale, they will be measured as 1 big object

12. Add a shrink value to all objects detected as an irregular object. Example for polybags that conforms to exterior packages

13. n/a

14. add or decrease to measurement to correct for example packing material, safety margin, etc

Maintenance

Weight calibration is described in the Parcelcube 900 Manual
Camera maintenance is generally not required but if lenses get dirty wipe off with soft damp cloth, only water no other chemicals.

If the system has been running for very long time, you might need to erase logs under c:\parcelcube r2\pcv\logs
Parcelcube Vision client need to be shut down when you delete old log files.

Appendix 1

Standalone option

Parcelcube Vision USB cable -> Computers USB
Parcelcube camera Ethernet -> POE adapters POE Ethernet

POE adapter LAN RJ45 -> Computers Ethernet
POE adapter Mains power -> Wall outlet for mains power

Computers Ethernet adapter can be left as unconfigured / DHCP or configured with an IP address but then Internet sharing must be enabled. Contact your IT department.

LAN connected option

Parcelcube Vision USB cable -> Computers USB
Parcelcube camera Ethernet -> POE enabled Switch in your local LAN

Your computer can connect as per your company's standard via ethernet or Wi-Fi