

Usage and Setup for UVC

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Support Queries: support@servicerobots.com

TURNING ON

Maneuver the robot to the starting point, always keep this point the same for reference within the specific room/map.

Keep half a meter around the robot free from any other items and about 2 feet away from the charging station (if used).

Press the rocker switch under the back left of the robot, you may notice a flicker of light.

Then press the button on the back until the lights start to flash then let go.

Wait until the lights show green (can take up to a minute to fully boot).

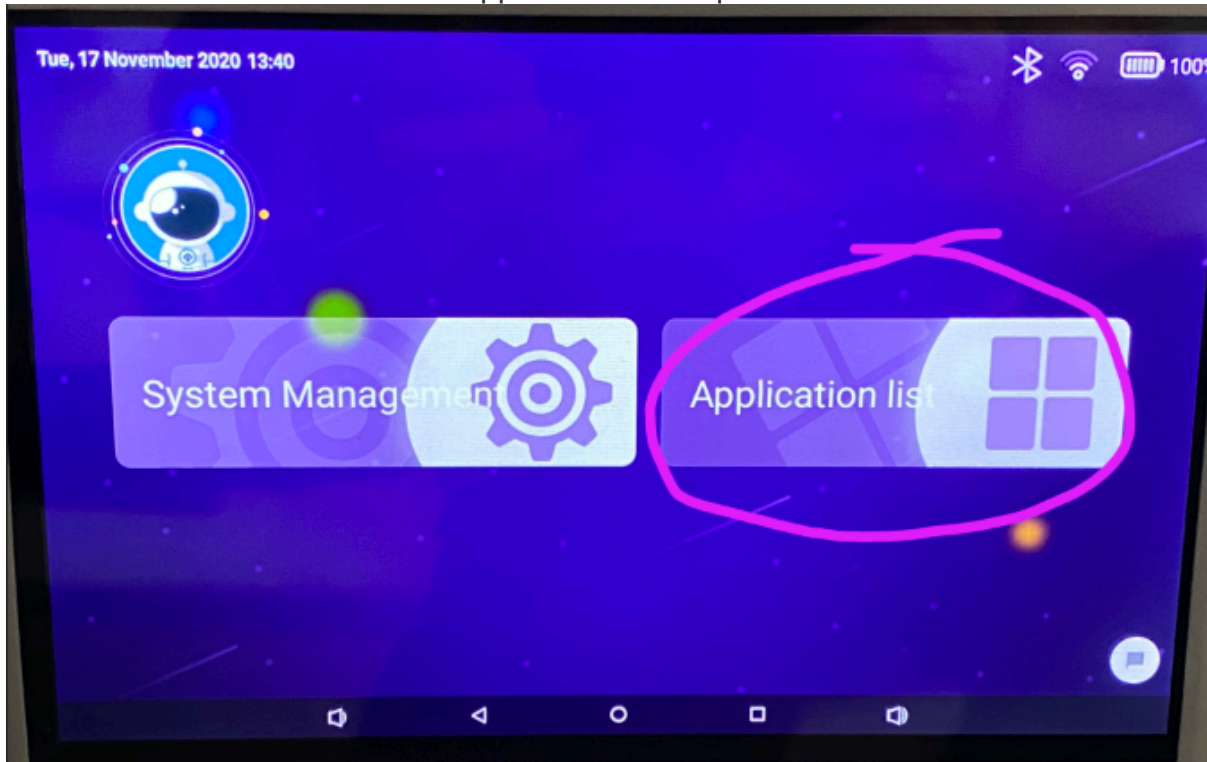


Notes:

- Don't push the robot around after starting it up (it won't know where it is).
- Always turn the robot on from the start point.
- If it needs to be moved use the app on the tablet.

ROBOT HOSPOT CONNECTION

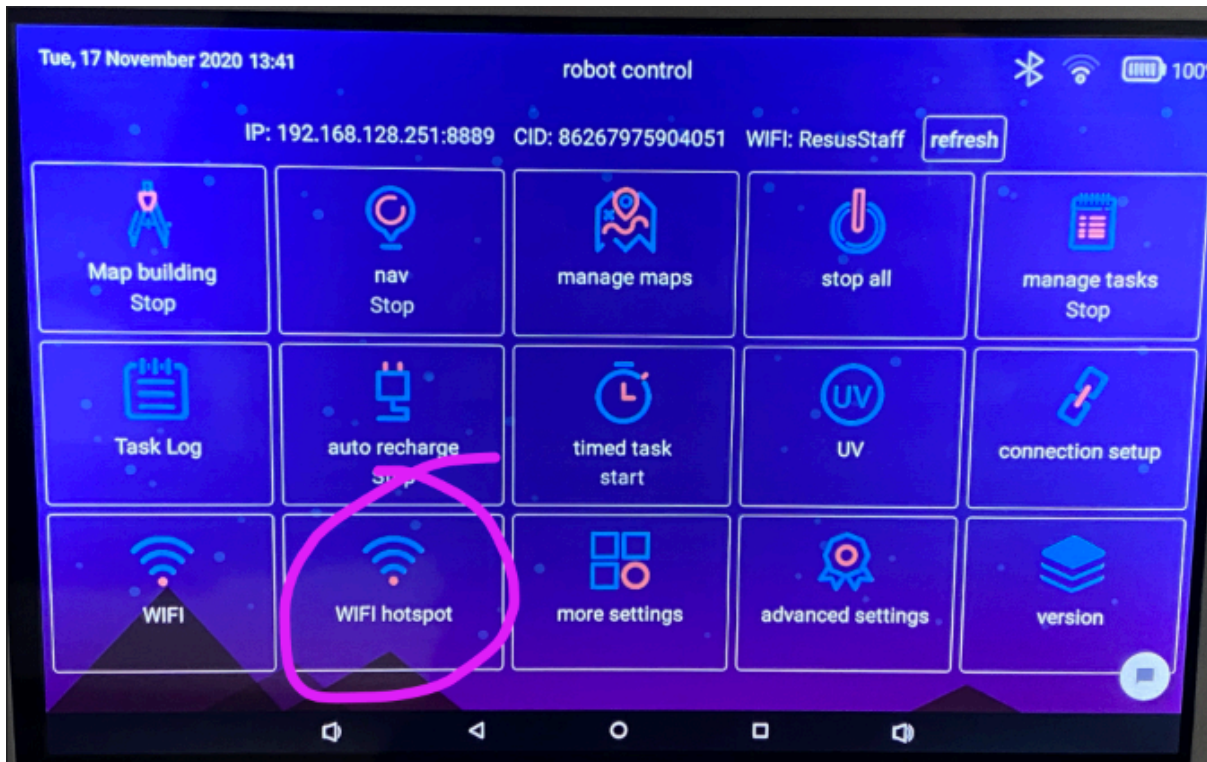
On the Robot's screen click the Applications List option.



Then choose the Robot Control App (if other apps on screen scroll the screen until you see the Robot Control app) then and click on that option.



Select the Wi-Fi Hotspot option and Press the OK option.



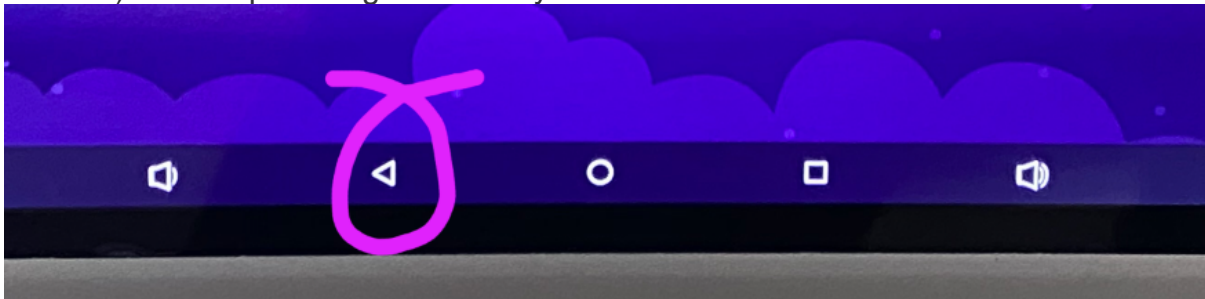
This will take you to the Android Wireless control settings.

Click the 'More' option and select Tethering & portable hotspot.

Turn the hotspot on by ticking the toggle switch to the right of 'Portable Wi-Fi Hotspot' text.

Options to set the name and a password for this option are also available.

When it's turn on go back via the bottom Left arrow (looks more like a triangle in Android) and keep clicking back until your back at the Robot Control interface.



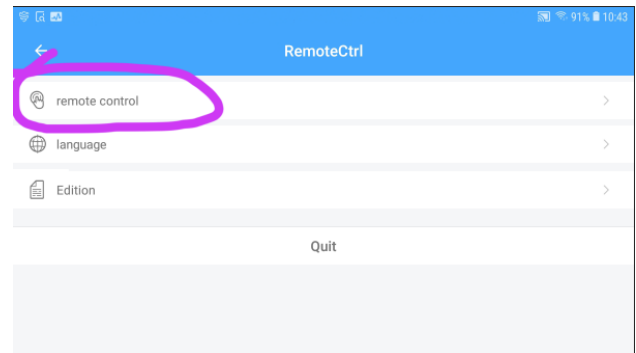
Next on the Tablet go to Wi-Fi Settings and search for the hotspot, connect to that Wi-Fi and the Hotspot connection is setup.

Notes:

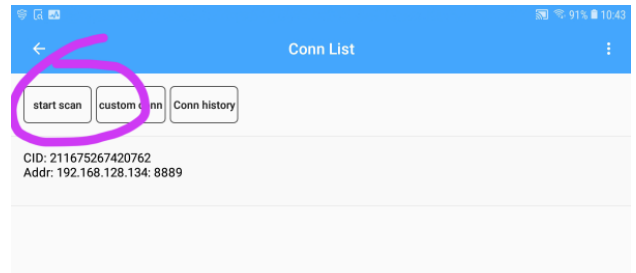
- It will say no internet on the tablet as no internet is connected, this is correct.

MAPPING

On the Tablet start the ServiceRobot app, when it's loaded click on 'remote control' option.



Next click 'Start scan' to check for robots nearby.

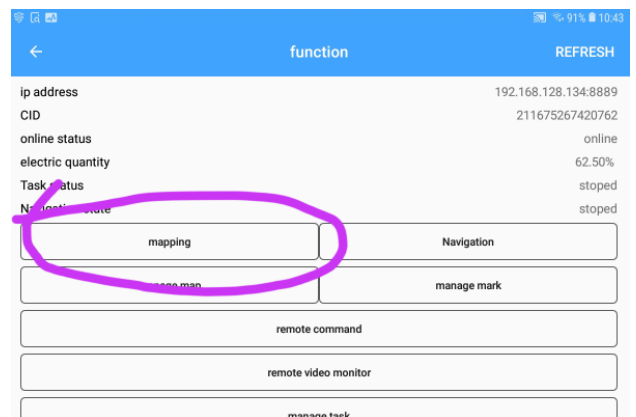


Select your robot to open up the options.

Notes:

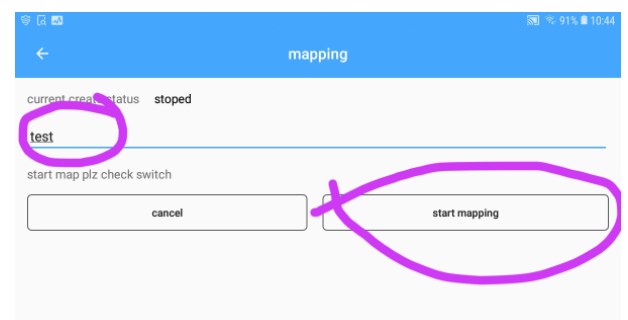
- Robots CID number can be found on the front of the robot
- If more than one robot is listed make sure your using the correct one!
- If no robots are listed check that the Tablet is connected to the hotspot of the Robot correctly.

The 'functions' screen will appear, next we want to Map the area around the robot so click on the 'mapping' option.



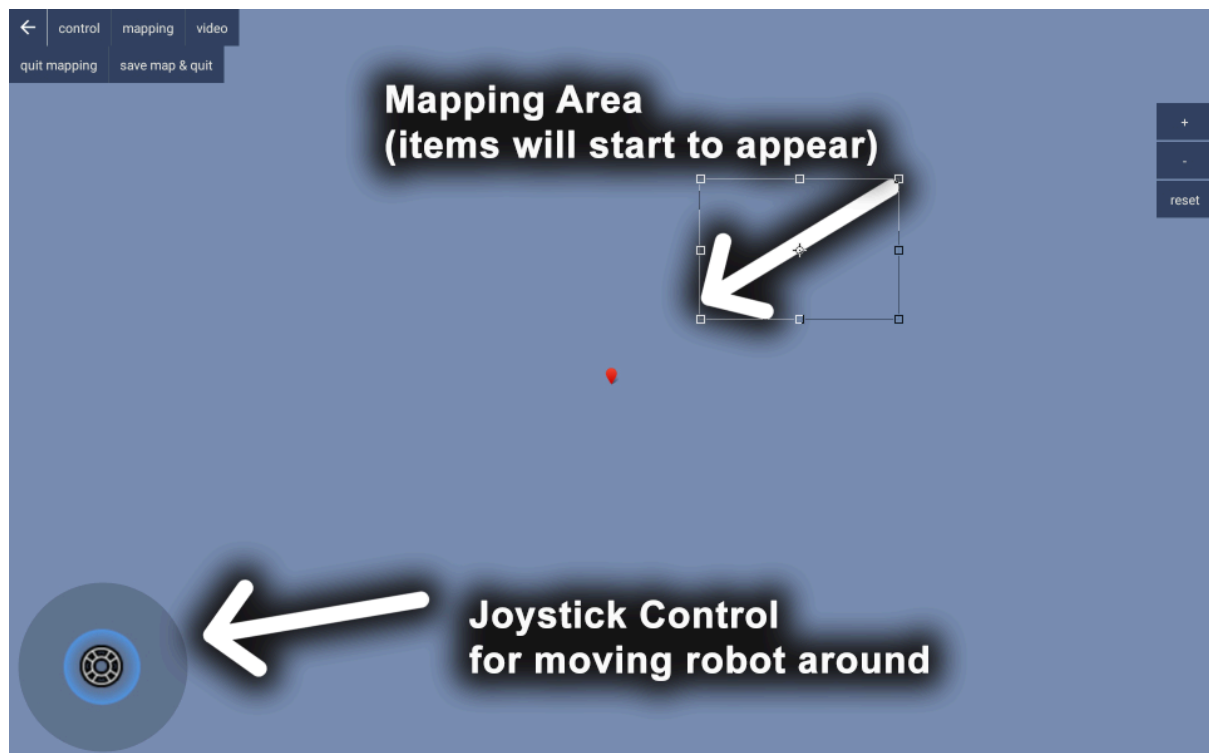
Then the first thing to do is name the map at the top to something more relevant, the room or particular part of the building for example.

Then click on 'Start mapping' to load up the mapping options.



Use the joystick control to move the robot around the room, and you'll notice the tablet screen will start to map out what the robot is able to 'see'. Move the robot around to map the room entirely to cover as much as possible of the room that you want to disinfect.

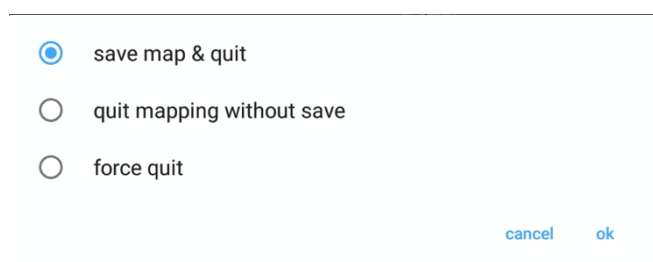
The red dot in the center with the directional arrow of the robot.



Notes:

- The robot can only travel to parts of a room that have been mapped so make sure areas required are covered by the robot.
- If the robot can't get into an area via manual control of the joystick then it also won't be able to get to that position when in autonomous mode.
- If the mapping detects a blue spot on the map it's recognising another robot.
- Chairs and any obstacles need to be pushed in out of any roaming paths.

When you have mapped out the room to your satisfaction return the robot roughly to the start position (always good practice to do this.) and click the 'save map & quit' option followed by a 'ok' to save map & quit (alternatively you could select the quit mapping without save option if you wish to start again.



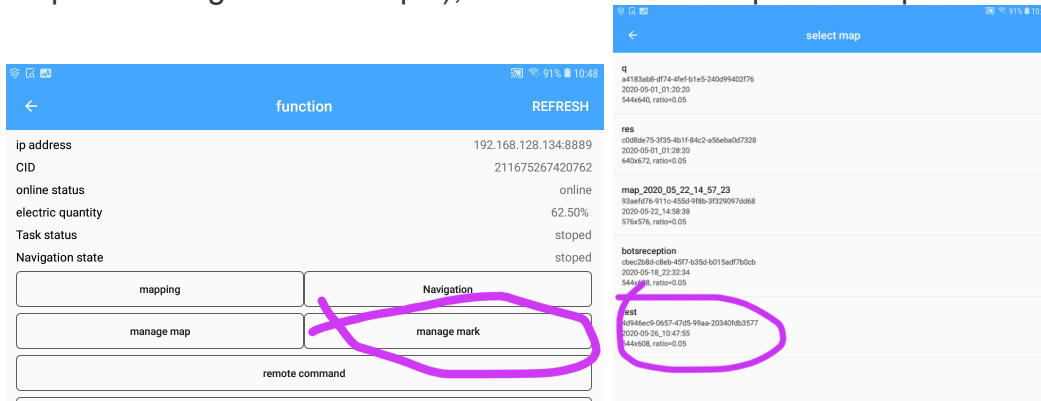
Your room has now been mapped out.

OBSTACLES AND MARKS

Obstacles

Next step is to mark out any obstacles in the room that we definitely want the robot to avoid.

On the tablet select the 'Manage Map' option and then select the particular map you require (more than likely it's the one you have just created, this is where naming the map something relevant helps!), then wait for the map to load up.



We now mark out obstacles that are permanently fixed.

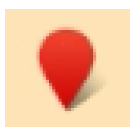
Zoom in the map and click 'edit map' and 'edit' and begin to draw around any obstacles you wish the robot to keep away from.

When your completed click the 'save' option then OK to update the map.



Marks

To add a Mark use the cursor in the middle of the screen as a position for the next mark and move the screen around to get it in the right position. Then simply click 'mark' then 'add' to set that position as a mark.



If you wish to rotate the mark select the mark then click the 'rotate' option. You can now use a slider to rotate the direction the mark is pointing. Repeat this process until you have as many marks as desired then click 'save mark'. When your done if you wish to rename the marks to something easier to understand click on 'mark list' to view all the marks on the right hand side and click the Pencil in a box icon to bring up the option to edit the name of the marks. When done click 'confirm' to return back to the marks list screen.



After altering all the marks you can confirm them all by clicking on 'save marks'.

Then return back to the previous screen by clicking the top left icon arrow a few times until it returns back to the 'function' screen.



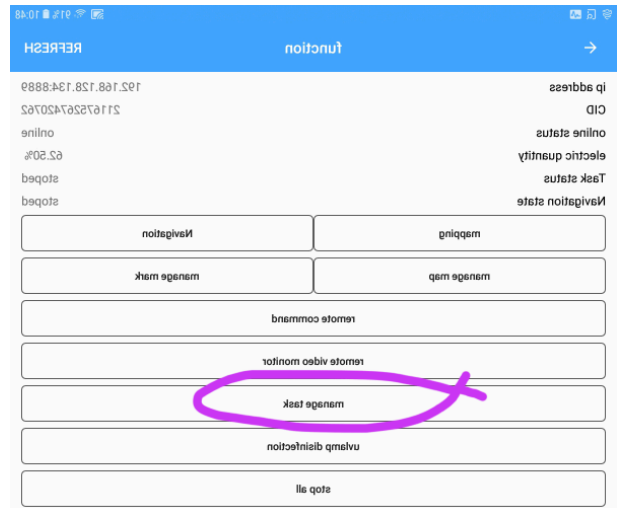
Your obstacles and marks are now set in place and you're ready to manage the tasks.

EDITING TASKS

On the tablet select the ServiceRobot app. If not loaded and connect to your robot.

Next select the 'manage task' option. Then select the map required. If the map is not listed click the 'add' at the top then select your map.

This will bring up the 'new task' window where we can set the new task up.



 A screenshot of the 'new task' configuration window. The window has a blue header with a back arrow and a 'new task' title. Below the header, there are several fields: 'task name: task_2020_05_26_10_51_53', 'map name: test', 'map ID: 4d946ec9-0657-47d5-99aa-20340fdb3577', 'repetition: 0', 'broadcast: action without arrival', and 'manual mode: auto pause by executing next action'. There are three toggle switches on the right: 'infinite loop', 'broadcast', and 'manual mode'. At the bottom, there are two buttons: 'Add TaskPoint' and 'save'.

Click on the task name and alter it to suit. Then click the repetition to set to how many times you wish it to go around the room.

Notes:

- Repetition 0 means 1, 1 means twice!

Selecting an Infinite loop will mean the robot will manually be required to stop.

Click Add TaskPoint to add in the marks previously set, then click the 'Select task point' and choose the first one desired.

Notes:

- Leave the StartPoint until the very last task.

Then it's just a case of setting up that particular task.

You can set a pre-action delay or after-action delay when the task is started by selecting the option and choosing the number of seconds required.

Then click select action to choose what happens as that Task Point.

- No action – nothing will be done
- Disinfection of ultraviolet lamp
 - Additional options will appear for this option allowing:
 - Mode: fixed point disinfection – start of continuous disinfection – stop disinfecting
 - Switch A – Internal Vacuum and internal Bulbs (Not harmful)
 - Switch B – External Bulbs Disinfection (Harmful)
 - Stay time – Seconds for how long to stay at the point to disinfect for if not continuous.
- Just back charge

- ☒ no action
- ☐ play audio
- ☐ play video
- ☐ recharge
- ☐ Disinfection of ultraviolet lamp
- ☐ just back charge

task point

task location

Select task point
(long press to clear)

mark2 >

Show navigating

☒

pre-action delay

0 >

after-action delay

0 >

select action

Disinfection of UVLamp >

Disinfection of ultraviolet lamp

mode

Fixed point disinfection >

Switch a

☒

Switch B

☒

stay time (s)

30

When setup click ‘add’ at the bottom of the screen to add that task to the list.

cancel

add

Repeat the ‘Add TaskPoint’ for all the tasks finishing with the last one being the ‘StartPoint’ option to return it back to the beginning.

Notes:

- It’s always necessary to end with the StartPoint.

When completed your new task should look something like below. Click ‘save’ to save this setting.

task name: task_2020_05_26_10_51_53

map name: test

map ID: 4d946ec9-0657-47d5-99aa-20340fdb3577

repetition: 0

infinite loop ☐

broadcast: action without arrival ☐

manual mode: auto pause by executing next action ☐

Add TaskPoint

save

1 door

Disinfection of ultraviolet lamp

Fixed point disinfection

No rotation Stay 30s

2 mark3

Disinfection of ultraviolet lamp

Fixed point disinfection

No rotation Stay 30s

After clicking save it will show you the task list (something like this):

add stop refresh

UV lamp disinfection task_2020-05-21_12-41-25

botsreception

Select your particular Task to manage the tasks.

MANAGING TASKS

task name: task_2020_05_26_10_51_53

map name: test

repetition: 0

broadcast: action without arrival

manual mode: off

current status: stoped

stop nav start nav

stop pause start

1 door start

Disinfection of ultraviolet lamp

Fixed point disinfection

No rotation Stay 30s

2 mark3 start

Disinfection of ultraviolet lamp

Fixed point disinfection

No rotation Stay 30s

3 StartPoint start

no action

Click Start to begin the tasks.

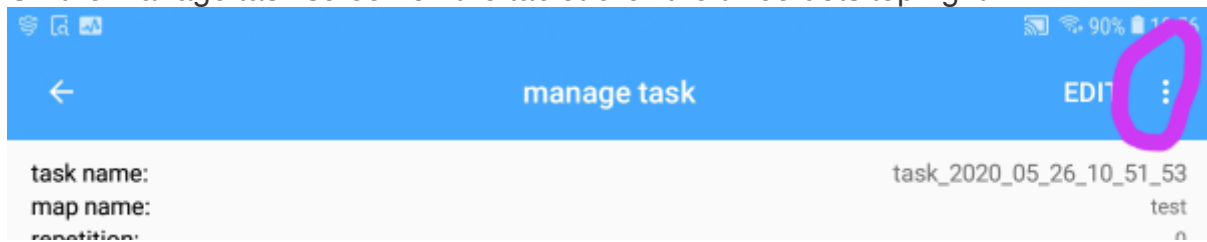
You will need to answer the checklist before the robot will start to run its task.

Notes:

- The checklist questions can be changed, this is shown in the CONFIG CHECKLIST section.

CHANGING THE CHECKLIST

On the manage task screen on the tablet click the three dots top right.



Then select the Config Checklist option to alter the questions.

Each question needs to start with a dot and end with a full stop (this is so it can know it's a new checklist option).

Notes:

- The checklist is designed for people to check the area before using the robot, so making sure this checklist is relevant is important.

MISCELLANEOUS

Reset Navigation

On occasion you may find that the Robot is not navigating accurately to the right locations, or it just starts to spin around rather than following tasks.

This is usually due to the robot being manually moved/pushed away from its starting position after it has been turned on.

As a result the position is not accurate to where the robot thinks it should be and causes all movements to be out of alignment.

To correct this and get the position back to the start position follow these instructions:

Open the ServiceRobots app on the tablet. Select 'Navigation' option then select 'Start Nav' and select the map for the particular room.

After the map has loaded it will show you all marks and positions and the supposed position for the Robot (StartPoint).

Select the 'control' option then choose the 'show joystick' and manually drive the robot back to the physically correct StartPoint (in the real world, on the map it will look wrong).

Then click 'hide joystick' and click 'nav' and click 'reset position' then select reset by StartPoint. Press Ok, then select the StartPoint.

Then Reset position again and select reset position by StartPoint.

That should then be set to the right position.

Notes:

This is a difficult item to explain but there is a online video that may be better to explain available on:

<https://www.servicerobots.com/uvsupport/> Called 'Reset Robot Navigation'.

Test Bulbs - Manual Testing the Bulbs

Notes:

- Make sure testing is from a distance and protective suit and goggles are worn in nearer the robot.

On the Tablet launch the ServiceRobots app and select your robot.
Select the 'Disinfection of UV Lamp' option on the screen.

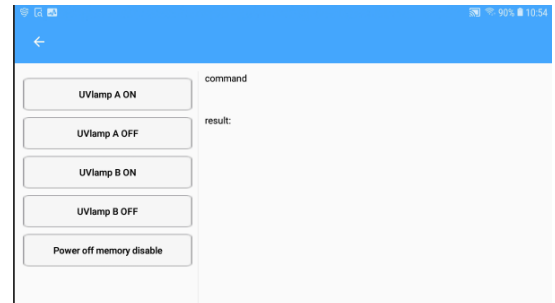
You are then presented with a few options.

UVLamp A On – Turns on the internal bulbs.

UVLamp A Off – Turns off the internal bulbs

UVLamp B On – Turns on the external bulbs.

UVLamp B Off – Turns off the external bulbs



Robot Speed Adjust

Changing the overall speed of the robot is achieved from the Robot's screen itself not from the Tablet.

On the robot control app select the 'Advanced Settings' options and scroll down to the 'nav speed setting' and click that option.

Adjust the slider to the required setting and select 'OK' to save.

Notes:

- The robot will need to be restarted before the new speed takes effect.

Programming Tasks on particular day/time

On the robot's screen interface within the 'robot control' app select the Shared Task option.

Then click Add to add a timed task and name it accordingly.

Select the 'trigger time' option and fill out the date and time to suit.

Click the repeat option to choose the when to repeat the task.

Then select the task and choose 'nav task' and select the particular task to perform.

Finally choose the start time and end time to set when to begin/end the task.

Finally click 'Save' to complete the timed task setup.

ROBOT USAGE PREPARATION

In order to have event free usage of the UVC Disinfection it's worth making sure a few things are checked before running the robot:

- Make sure all chairs are cleared or tucked away from roaming areas
- Likewise make sure any obstacles are clear of walkways and roaming areas
- Make sure rooms with doors that are in the mapping area are left open if access to the rooms is required.
- Check all pathways and rooms have enough clearance for the robot to safely negotiate

FREQUENTLY ASKED QUESTIONS

Can I be in the room when the robot is turned on?

If the internal filtration or no bulbs are being used – Yes

If you have proper protective suit and goggles - **Maybe**

Otherwise - **NO**

What is the reach of the Bulb's when in use?

Bulb UVC reach is 1.2m² (360°)

What's the speed of the robot?

Each second the robot can cover 40mm.

How long does the battery last on nominal use from full charge?

~5 hours for internal filtration and external Disinfection

~7 hours for internal filtration

How often should I charge the Robot?

Every couple of days should be ok.

Lifetime span of battery/bulbs/filtration?

~9000 hours

What distance from objectives does the robot need to be for maneuverability?

100cm diameter for easy maneuverability?

Can I control the robot and view the camera?

More advanced options are available as videos on our support website

<https://www.servicerobots.com/uvsupport/>

[illegible]

Robot CID: _____

Robot HotSpot WiFi:

Robot HotSpot Wifi Password: