

kulturBOT Instruction Manual

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1 Getting Started

Hello there! You have been tasked with taking care of my kulturBOT! Welcome to the team! We are glad to have you with us. Here are some things to get you started working with kulturBOT.

1.1 Quick Facts

Twitter Profile: @kulturBOT

Facebook Profile: Facebook Homepage

Expected Battery Life: 3 Hours.

Expected Charge Time: 3 Hours.

kulturBOT uses **The Futurist Manifesto** by *F. T. Marinetti, 1909* to create its tweets.

kulturBOT's speech comes from the last 200 things it has tweeted.

1.2 my kulturBOT's Anatomy

my kulturBOT is made from a version of the iRobot Create which is directly related to the popular in house robotic vacuum cleaner. Hidden under the front of the strainer, kulturBOT has three buttons. These three buttons are used to control various functions of kulturBOT. Refer to Figure 1 for the names of these buttons. Also take note of the names of the LED's.

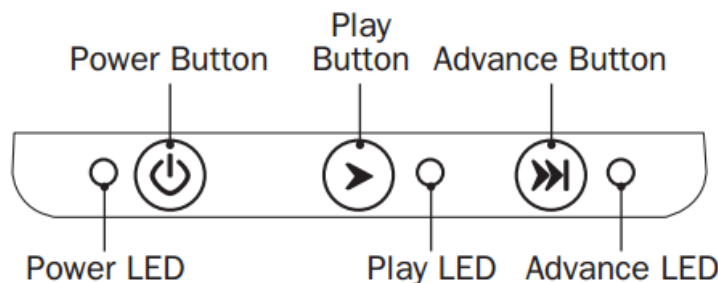


Figure 1: Three Buttons Found Under Strainer

1.3 Turning kulturBOT on.

1. Press the **Power Button**. The **Power LED** should now be green and you will hear a *beep*.

1.3.1 Is kulturBOT turned on?

To determine if kulturBOT is on, observe the **Power LED**. If it is **Green**, kulturBOT is on. If it is **Orange/Amber** kulturBOT is on but needs to be charged

(See Section 2.4). If the **Power LED** is not on, kulturBOT is either off or the batteries are dead.

1.3.2 Restarting kulturBOT

From time to time you will need to restart kulturBOT . To restart kulturBOT:

1. Press the **Power Button**. The **Power LED** should now be off.
2. Press the **Power Button** again. The **Power LED** should now be green and you will hear a *beep*.

1.4 Virtual Walls

Use the virtual walls to prevent kulturBOT from leaving a room or getting too close to delicate items. To turn them on press the power button on the front so the green LED is illuminated.

DO NOT PLACE VIRTUAL WALLS WITHIN 1.5m OF THE CHARGING STATION.

The walls can confuse kulturBOT and it may not be able to find it's charging station.

NOTE: The walls will only stay on for 2.5 hours and must be restarted.

2 Normal Operation

The following outlines how to get my kulturBOT operating normally.

2.1 Laptop Server and Twitter Feed

1. With the Laptop logged in, open up Visual Studio from the desktop short-cut and hit **F5**. A black Console window will open up. Refer to Figure 2 for an example of how it should look.
2. Check the kulturBOT twitter feed and ensure a tweet has been sent in the last 60 seconds. If after waiting 2 minutes no tweet appears, refer to Section 4.1. Under normal operation, no messages will appear on the black console window. If there is a problem with the internet, there will be a message in the black console window.
3. To set up the live twitter feed, first connect the laptop to the projector. Ensure the projector is set up as an external display (should automatically do this). Open up Chrome from the Desktop shortcut and navigate to the kulturBOT twitter feed.
4. Enable the Chrome Browser Plugin "Auto Refresh Plus". Set the interval to **1 minute** and press **Start**. See Figure 3 for reference.

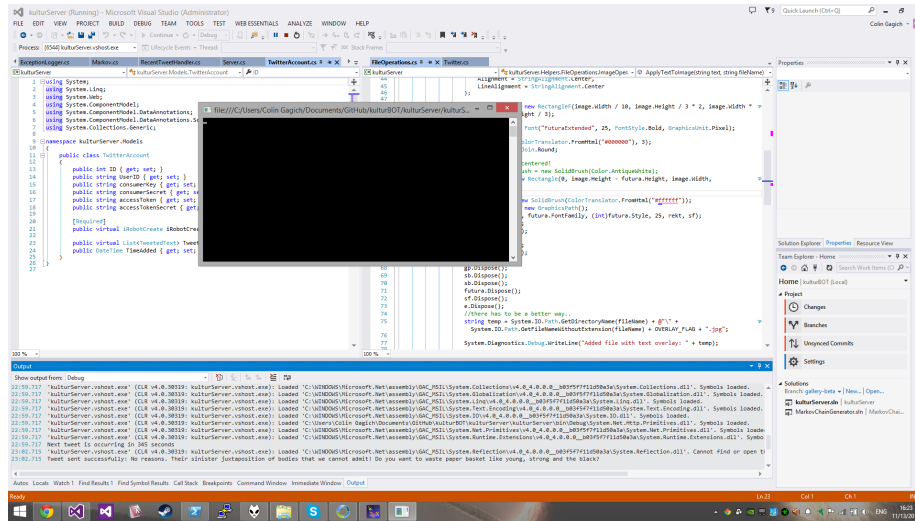


Figure 2: Normal Operation of the Laptop

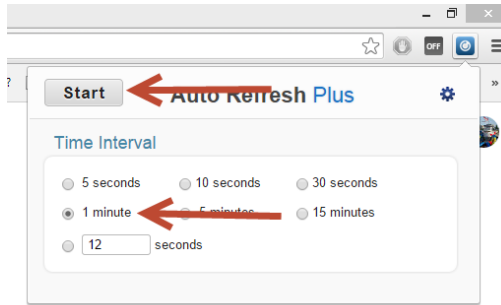


Figure 3: Auto Refresh Plus

5. Fullscreen the Chrome Browser by pressing F11.
6. **NOTE:** When the Laptop turned on and the black console window is open, it will tweet **text without an image** every 2-6 minutes. This happens independently of kulturBOT being turned on and functioning. Because of this, the Laptop should be shut down when the gallery is not open.

2.2 Connecting to the my kulturBOT Unit

First ensure kulturBOT is turned on. Refer to 1.3.1.

2.2.1 From a MAC or Linux Machine

1. Ensure you are on the same WiFi network as kulturBOT. In this case, kulturBOT was on the WiFi network: **Robot** with password: **Robot**
2. Open up the Terminal and enter in the following command.

```
ssh_pi@10.20.58.151
```

NOTICE: The 'underscore' character represents a space.

3. You will then be prompted for a password. The password is: **raspberrypi**. While you are typing in the password the cursor will not advance, this is a security measure.
4. You have now started an "SSH Session" with kulturBOT. This allows you to send commands to it. To get kulturBOT to move and function normally, run the following two commands, pressing enter in-between each of them.

```
cd_kulturBOT/Test\_Client\_Server/  
sudo_python_picam.py
```

kulturBOT should *beep* and then everything should function normally. The Terminal window must remain open or kulturBOT will stop functioning.

2.2.2 From a Windows Machine

Instructions coming soon.

2.3 Stopping my kulturBOT

1. Wait until kulturBOT has temporarily stopped moving. This should happen every 15-30 seconds.
2. From your Terminal Window, press **CONTROL + C**. This will end all functions on kulturBOT.
3. To end the SSH Session with kulturBOT, enter the following command.

```
exit
```

If you were unable to stop kulturBOT using the previous steps, try these next:

1. Find the kulturBOT unit.
2. *Aggressively* press the **Power Button** as depicted in Figure 1.

2.4 Charging my kulturBOT

1. Determine if the kulturBOT unit is on. Refer to Section 1.3.1
2. IF kulturBOT **is on**, stop it if it is running (See Section 2.3). Next press the **Advance Button** one time. You should immediately hear two quick *beeps*. Now press the **Play Button**. kulturBOT will move on its own and find it's charging dock.

NOTE: if you do not hear two quick beeps after pressing the Advance Button, restart kulturBOT.

3. IF kulturBOT **is not on** or **wont turn on** manually pick up kulturBOT and place it onto it's charging dock.

3 Normal Behaviour

This section will describe the "loop" which kulturBOT follows. If kulturBOT is behaving in any other way, it should be restarted.

1. After turning on, kulturBOT will *beep* and start moving.
2. After 15-30 seconds, kulturBOT will stop.
3. After 15-30 seconds, kulturBOT will *beep* and start moving again.
4. This cycle will repeat.

When kulturBOT is stopped, it will do one of three things:

1. Take a picture. A bright Red LED will become visible for 3 seconds. The picture will then be tweeted.
2. Say a sentence of text. This is one of the past 200 things it has tweeted.
3. Do nothing.

After 3 hours, kulturBOT should be charged. See Section 2.4.

4 Troubleshooting

4.1 kulturBOT isn't tweeting!

This is most likely due to internet problems. Check the output of the black console window of the laptop.

4.2 kulturBOT is taking pictures but not moving.

Restart the SSH Session with kulturBOT, running all the commands found in Section 2.2

4.3 kulturBOT is moving but not taking pictures.

Restart the SSH Session with kulturBOT, running all the commands found in Section 2.2

4.4 kulturBOT won't turn on.

kulturBOT batteries are probably dead. Try the instructions in Section 2.4.

4.5 Something else has happened!

Try restarting everything. Laptop, kulturBOT, and anything else. If you are still having issues contact Colin Gagich - colin.gagich@gmail.com