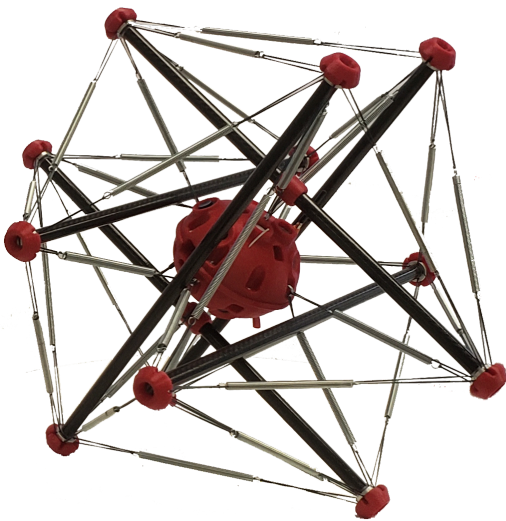




SQUISHY  
ROBOTICS

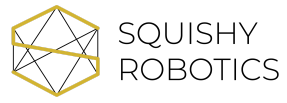


# Squishy Robotics Stationary Robot Software Update Guide

(abridged from User Guide)

Version 1.0

Squishy Robotics  
2600 Tenth Street  
Suite 308  
Berkeley, CA 94710  
[Squishy-Robotics.com](http://Squishy-Robotics.com)  
[info@squishy-robotics.com](mailto:info@squishy-robotics.com)



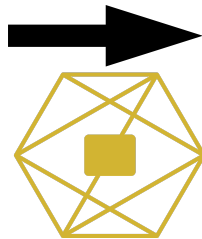
# Remote Software Updates

From time to time, Squishy Robotics will update the code that runs our robots. Such code updates, which will be sent via the Internet, need to be added first to the Chromebook and then uploaded to each robot.

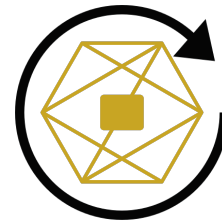
The updating process downloads new code from Squishy Robotics and then works with Teensy Loader software. The downloading application (Chromebook Updater) and the two Teensy Loader applications (Teensy Upload and Teensy Reboot) are included in the installed software on the Chromebook. Each icon appears on the Chromebook Desktop.



Chromebook Updater



Teensy Upload



Teensy Reboot

This section explains the specific actions that must be performed to update the Chromebook and the robots.

Note that the filename for each software update *is unique* to the specific robot hardware version to be updated. A filename includes the appropriate letter/number combinations for a specific robot hardware version. ***Updating a code version that is not compatible with the hardware may cause serious problems.*** Some problems may be obvious almost immediately (e.g., communications issues) or may show up only during operational use (e.g., sensor readings appear exceedingly incorrect).

## Downloading Code Updates

Squishy Robotics will send users an email announcing that a new software update is available. Users may choose to run updates at any time. Squishy Robotics will provide information in the email as well as in a changelog to help users determine when the best time to run updates for their site will be. **Be aware that a newly updated Chromebook may not work with non-updated robots.**

The Chromebook stores a folder with all computer and robot-related code to run the Squishy Robotics' user interface (UI) and sensor robots. The downloading process adds the latest Squishy Robotics code to this folder.

### Updating Chromebook Code

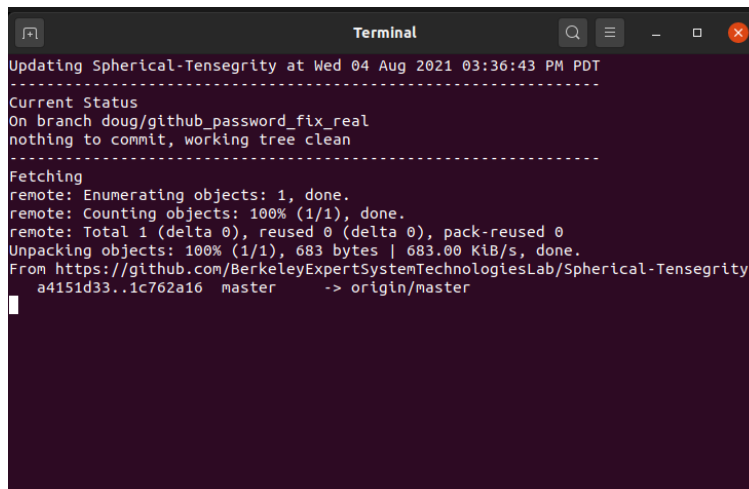
If the Squishy Robotics UI is running, exit from the dashboard by clicking the x in the upper right of the dashboard before beginning the downloading process.

After quitting the UI (if needed), make sure that Chromebook is ON and connected to the Internet.

1. Start the downloading process by double-clicking the Chromebook

Updater icon  on the Desktop.

2. A terminal window appears that displays status information from the code repository and shows the updating process.



```
Terminal
Updating Spherical-Tensegrity at Wed 04 Aug 2021 03:36:43 PM PDT
-----
Current Status
On branch doug/github_password_fix_real
nothing to commit, working tree clean
-----
Fetching
remote: Enumerating objects: 1, done.
remote: Counting objects: 100% (1/1), done.
remote: Total 1 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (1/1), 683 bytes | 683.00 KiB/s, done.
From https://github.com/BerkeleyExpertSystemTechnologiesLab/Spherical-Tensegrity
 a4151d33..1c762a16 master -> origin/master
```

A short download begins and then the update process asks for the username and password to be entered. Once the correct login information is entered, the process begins a second download. The window closes automatically upon download completion. If the download fails (for example, a power failure occurs and Internet connectivity is lost), an error message remains in the window for 20 seconds.

This process does two things:

- Updates the Squishy Robotics UI
- Updates the code on the Chromebook that subsequently will be uploaded to the robots

This Chromebook process must be done *before* any updating of the robot code.

If the Chromebook Updater encounters a problem, an error is displayed in the window. In such cases, contact Squishy Robotics Customer Support and provide the error message.

## Updating Robot Code

Needed supplies and/or tools:

- One (1) USB micro cable (the USB micro cable is the same cable that is used with the receiver).
1. Start with the robot turned OFF.
  2. Plug in the USB micro cable to the Chromebook and then to the robot's USB port, connecting the computer and robot together. Take care when inserting the USB cable into the robot as the connector can be easily damaged if the connections are misaligned or too much force is used.

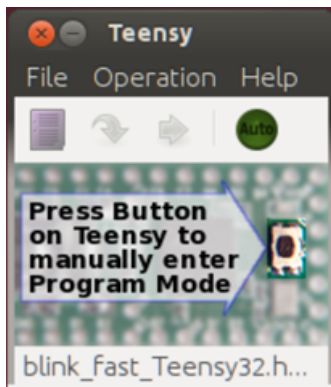
The robot turns ON but does not beep.

3. Verify that the LEDs in the Robot Status LEDs Slots turn on.
4. Open and run the Teensy Upload application by double-clicking that icon



on the Desktop.

The Teensy Loader UI screen appears.




Ignore the Press Button information on this screen.

5. In the Teensy Loader UI screen, select **File > Open HEX File**.
6. Navigate to and select the appropriate robot update code, e.g.,  
/home/SquishyRobotics/Spherical-Tensegrity/robot/sensor\_pod/  
sensor\_pod.ino.hex. (The same file path is used for each update.)

Choose the correct file based upon the robot payload version in use.

No obvious changes occur to the UI or the robot during this step.

7. Open and run the Teensy Reboot application by double-clicking that icon  on the Desktop.

Running this application makes the robot's lights stop blinking and puts the robot into Programming mode.

A short delay (less than 30 seconds) occurs and then a small progress bar quickly goes from 1 to 100. The robot code is now updated.

The robot transitions from Programming mode to ON mode and the LEDs return to their normal pattern of display and blinking.

Note that a terminal window may briefly appear and disappear on the Chromebook screen during this reboot; such a window can be ignored.

8. Remove the USB micro cable from the robot.

Be aware that unplugging the robot from the USB micro cable turns OFF the robot; the robot does not beep.

9. Repeat Steps 1 through 8 with each robot that requires updating.