

Project Report

Project 2 ECE 528

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### Acknowledgement

I acknowledge all works including figures, codes, and writings belong to me and/or persons who are referenced. I understand if any similarity in the code, comments, customized program behavior, report writings, and/or figures are found, both the helper (original work) and the requestor (duplicated/modified work) will be called for academic disciplinary action

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## Test Case Design :

- testInitialPlugStatus – Verifies that Plug X is initially off and has 0.000W power.
- testSwitchOn – Ensures that Plug X turns on when the `action=on` request is sent.
- testSwitchOff – Checks that Plug X can be turned off after being turned on.
- testRemainOnAfterSwitching – Confirms that Plug X remains on after being switched on.
- testToggleOnToOff – Ensures that toggling an on Plug X turns it off.
- testToggleOffToOn – Ensures that toggling an off Plug X turns it on.
- testPlugYInitialState – Verifies that Plug Y is initially off.
- testVerifyPlugRemainsOn – Ensures that Plug X stays on after being switched on.
- testPlugZPowerReadingOff – Confirms that Plug Z has 0.000W power when off.
- testListPlugs – Checks that all plugs (Plug X, Plug Y, Plug Z) are listed when accessing `/`.
- testInvalidPlugName – Ensures an error message is returned for a non-existent plug.
- testInvalidAction – Verifies that an error message is returned for an invalid action.
- testMultipleToggles – Ensures that repeated toggling correctly alternates Plug X's state.
- testEnsureSwitchOffAfterOn – Confirms that Plug X can be turned off after being turned on.

How did you implement the features? What classes have you added/modified?

Class Name	Modifications/Features Implemented
<b>HTTPCommands.java</b>	Implemented HTTP request handling for plug status, switching, and toggling.
<b>PlugSim.java</b>	Managed plug states (on/off) and power measurements.



## Class ece448.iot\_sim.HTTPCommandsTests

all > ece448.iot\_sim > HTTPCommandsTests

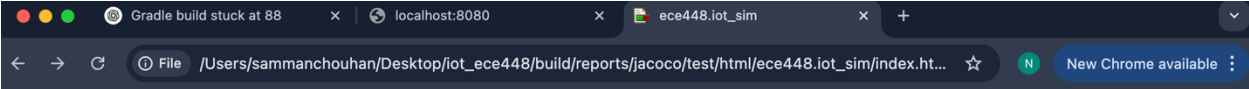
14	0	0	0.112s
tests	failures	ignored	duration

100%  
successful

Tests Standard output

Test	Duration	Result
testEnsureSwitchOffAfterOn	0s	passed
testInitialPlugStatus	0s	passed
testInvalidAction	0s	passed
testInvalidPlugName	0.001s	passed
testListPlugs	0.001s	passed
testMultipleToggles	0.001s	passed
testPlugYInitialState	0s	passed
testPlugZPowerReadingOff	0s	passed
testRemainOnAfterSwitching	0s	passed
testSwitchOff	0.107s	passed
testSwitchOn	0s	passed
testToggleOffToOn	0.001s	passed
testToggleOnToOff	0.001s	passed
testVerifyPlugRemainsOn	0s	passed

## Screenshots of the coverage report pages



iot\_ece448 > ece448.iot\_sim Source Files Sessions

### ece448.iot\_sim

Element	Missed Instructions	Cov.	Missed Branches	Cov.	Missed	Cxty	Missed	Lines	Missed	Methods	Missed	Classes
Main	<div></div>	0%	<div></div>	0%	6	6	19	19	4	4	1	1
MeasurePower	<div></div>	0%	<div></div>	0%	6	6	20	20	5	5	1	1
SimConfig	<div></div>	0%	<div></div>	n/a	6	6	12	12	6	6	1	1
HTTPCommands	<div></div>	100%	<div></div>	100%	0	14	0	36	0	5	0	1
PlugSim	<div></div>	100%	<div></div>	100%	0	15	0	34	0	10	0	1
Total	189 of 489	61%	6 of 32	81%	18	47	51	121	15	30	3	5

## Grading Test Cases

```
~ /Desktop/iot_ece448 master !34 ?6 05:22:08 PM
gradle gradle_p2

> Task :grade_p2
2025-03-02 17:22:28,956 INFO JHTTP: accepting connections on port 8080
2025-03-02 17:22:29,111 INFO JHTTP: /127.0.0.1:55082 GET /xxxx HTTP/1.1
2025-03-02 17:22:29,111 INFO HTTPCmd /xxxx: {}
***** testCase00 of GradeP2: pass
2025-03-02 17:22:29,119 INFO testCase00 of GradeP2: success
*****
2025-03-02 17:22:29,119 INFO JHTTP: /127.0.0.1:55083 GET /xxxx?action=on HTTP/1.1
2025-03-02 17:22:29,119 INFO HTTPCmd /xxxx: {action=on}
***** testCase01 of GradeP2: pass
2025-03-02 17:22:29,120 INFO testCase01 of GradeP2: success
*****
2025-03-02 17:22:29,121 INFO JHTTP: /127.0.0.1:55084 GET /xxxx?action=off HTTP/1.1
2025-03-02 17:22:29,121 INFO HTTPCmd /xxxx: {action=off}
***** testCase02 of GradeP2: pass
2025-03-02 17:22:29,121 INFO testCase02 of GradeP2: success
*****
2025-03-02 17:22:29,122 INFO JHTTP: /127.0.0.1:55085 GET /xxxx?action=on HTTP/1.1
2025-03-02 17:22:29,122 INFO HTTPCmd /xxxx: {action=on}
***** testCase03 of GradeP2: pass
2025-03-02 17:22:29,123 INFO testCase03 of GradeP2: success
*****
2025-03-02 17:22:29,123 INFO JHTTP: /127.0.0.1:55086 GET /xxxx?action=toggle HTTP/1.1
2025-03-02 17:22:29,123 INFO HTTPCmd /xxxx: {action=toggle}
***** testCase04 of GradeP2: pass
2025-03-02 17:22:29,124 INFO testCase04 of GradeP2: success
*****
2025-03-02 17:22:29,124 INFO JHTTP: /127.0.0.1:55087 GET /xxxx?action=toggle HTTP/1.1
2025-03-02 17:22:29,124 INFO HTTPCmd /xxxx: {action=toggle}
***** testCase05 of GradeP2: pass
2025-03-02 17:22:29,125 INFO testCase05 of GradeP2: success
*****
2025-03-02 17:22:29,125 INFO JHTTP: /127.0.0.1:55088 GET /yyyy HTTP/1.1
2025-03-02 17:22:29,125 INFO HTTPCmd /yyyy: {}
***** testCase06 of GradeP2: pass
2025-03-02 17:22:29,126 INFO testCase06 of GradeP2: success
*****
2025-03-02 17:22:29,126 INFO JHTTP: /127.0.0.1:55089 GET /xxxx HTTP/1.1
2025-03-02 17:22:29,126 INFO HTTPCmd /xxxx: {}
***** testCase07 of GradeP2: pass
2025-03-02 17:22:29,127 INFO testCase07 of GradeP2: success
*****
2025-03-02 17:22:29,127 INFO JHTTP: /127.0.0.1:55090 GET /zzzz.789 HTTP/1.1
2025-03-02 17:22:29,127 INFO HTTPCmd /zzzz.789: {}
***** testCase08 of GradeP2: pass
2025-03-02 17:22:29,128 INFO testCase08 of GradeP2: success
*****
2025-03-02 17:22:29,128 INFO JHTTP: /127.0.0.1:55091 GET /zzzz.789?action=on HTTP/1.1
2025-03-02 17:22:29,128 INFO HTTPCmd /zzzz.789: {action=on}
2025-03-02 17:22:30,637 INFO JHTTP: /127.0.0.1:55092 GET /zzzz.789 HTTP/1.1
2025-03-02 17:22:30,638 INFO HTTPCmd /zzzz.789: {}
***** testCase09 of GradeP2: pass
2025-03-02 17:22:30,640 INFO testCase09 of GradeP2: success
*****

Local Grading Test Result: 10/10 cases passed
*****
* Make sure you "git add ." and "git commit -am "your comments" and "git push" *
* to fully upload all of your codes to the Endeavour Git Repo. *
* Otherwise, your grading result may differ from your local result vs. server *
*****
2025-03-02 17:22:30,641 INFO JHTTP: disconnected Socket closed

Deprecated Gradle features were used in this build, making it incompatible with Gradle 7.0.
Use '--warning-mode all' to show the individual deprecation warnings.
See https://docs.gradle.org/6.9.3/userguide/command_line_interface.html#sec:command_line_warnings

BUILD SUCCESSFUL in 2s
6 actionable tasks: 1 executed, 5 up-to-date
```