**SRIP Project 1 Documentation**

**Tensile Testing**

**Task allotted:**

* In virtual-labs repository, [basic-engineering-mechanics-and-strength-of-materials-iiith](https://github.com/K-Kavitha-Kiran/basic-engineering-mechanics-and-strength-of-materials-iiith) lab, the task was to resolve Issue No. : 158
* Issue No. : 158 was to convert following tensile test experiment to JavaScript. Link to the experiment :

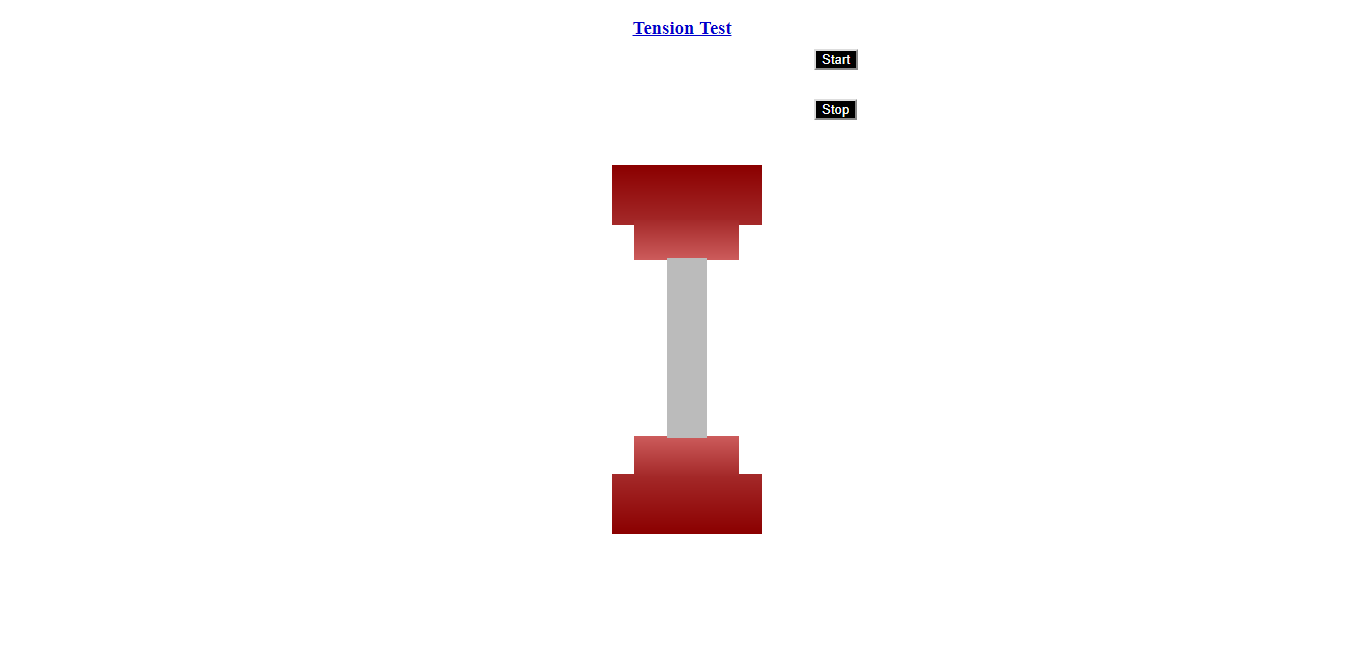
<http://eerc01-iiith.vlabs.ac.in/exp1/Introduction.html?domain=Civil%20Engineering&lab=Welcome%20to%20Basic%20Engineering%20Mechanics%20and%20Strength%20of%20Materials%20lab!>

**Experiment Explanation:**

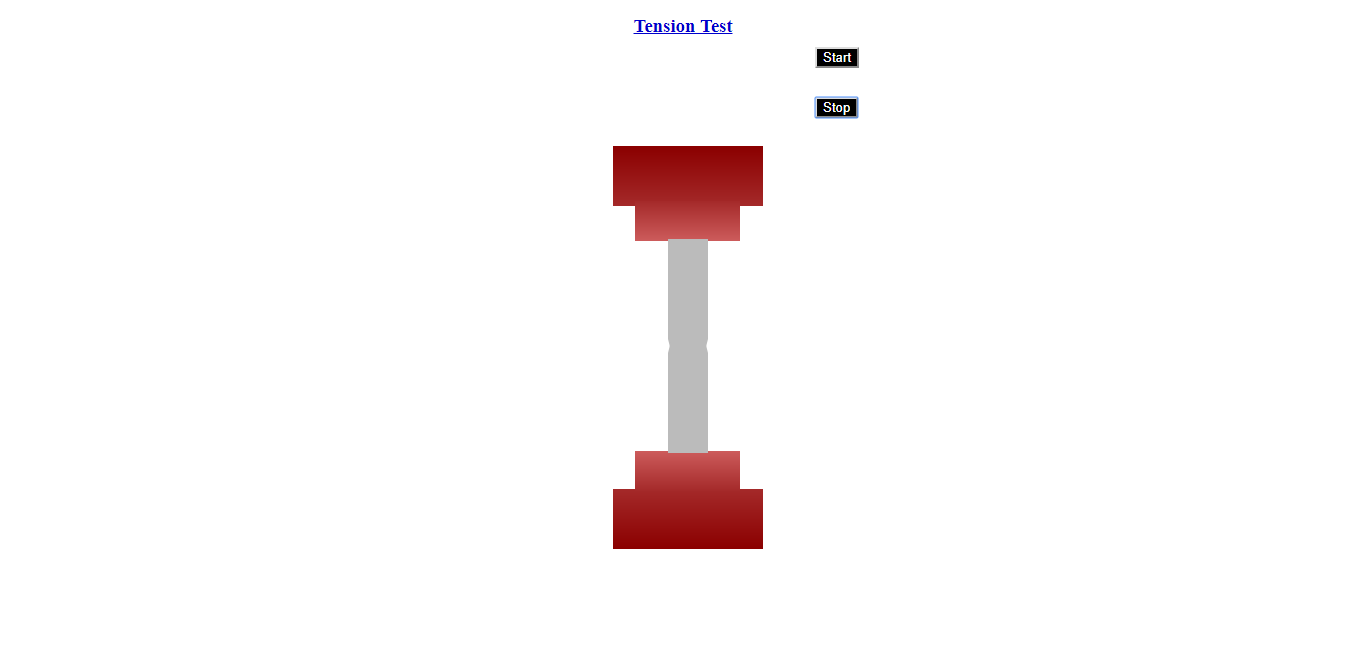
* A tensile test, also known as a [tension test](https://www.instron.in/en-in/our-company/library/test-types/tensile-test), is one of the most fundamental and common types of mechanical testing. A tensile test applies tensile (pulling) force to a material and measures the specimen's response to the stress. By doing this, tensile tests determine how strong a material is and how much it can elongate. Tensile tests are typically conducted on [electromechanical](https://www.instron.in/en-in/products/testing-systems/universal-testing-systems/electromechanical)or [universal testing instruments](https://www.instron.in/en-in/products/testing-systems/universal-testing-systems), are simple to perform, and are fully standardized.
* We can learn a lot about a substance from tensile testing. By measuring the material while it is being pulled, we can obtain a complete profile of its tensile properties. When plotted on a graph, this data results in a [stress/strain curve](https://www.instron.in/en-in/our-company/library/glossary/s/stress-strain-diagram) which shows how the material reacted to the forces being applied. The point of break or failure is of much interest, but other important properties include the [modulus of elasticity](https://www.instron.in/en-in/our-company/library/glossary/m/modulus-of-elasticity), [yield strength](https://www.instron.in/en-in/our-company/library/glossary/y/yield-strength), and strain.

**How to Run the Experiment:**

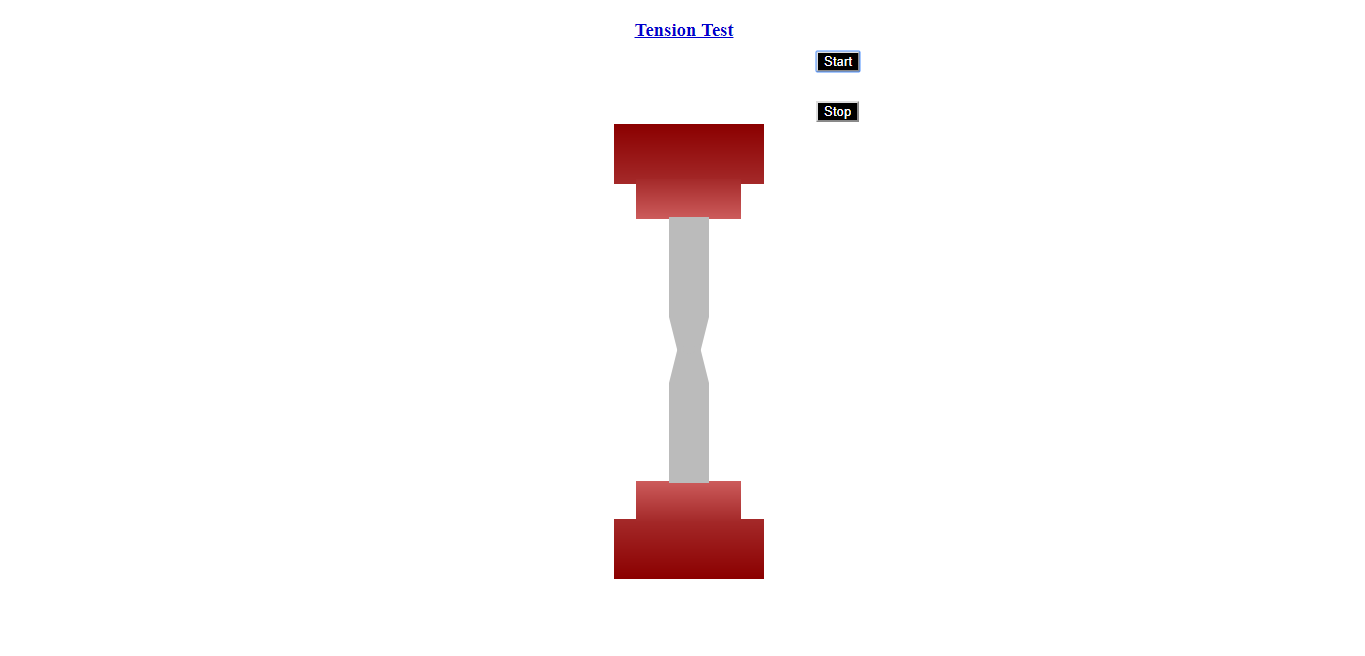
1. My forked repository (<https://github.com/K-Kavitha-Kiran/basic-engineering-mechanics-and-strength-of-materials-iiith>) contains a folder named “SRIP”.
2. SRIP folder contains folder named as Codes and Libraries. Codes contain all the files containing code for the experiment written in JavaScript, HTML, and CSS. Libraries contain JavaScript libraries used in the codes.
3. The Codes folder contains 3 files. To run the experiment, simply run the test10.html file by clicking on it.
4. The experiment will open in the browser.



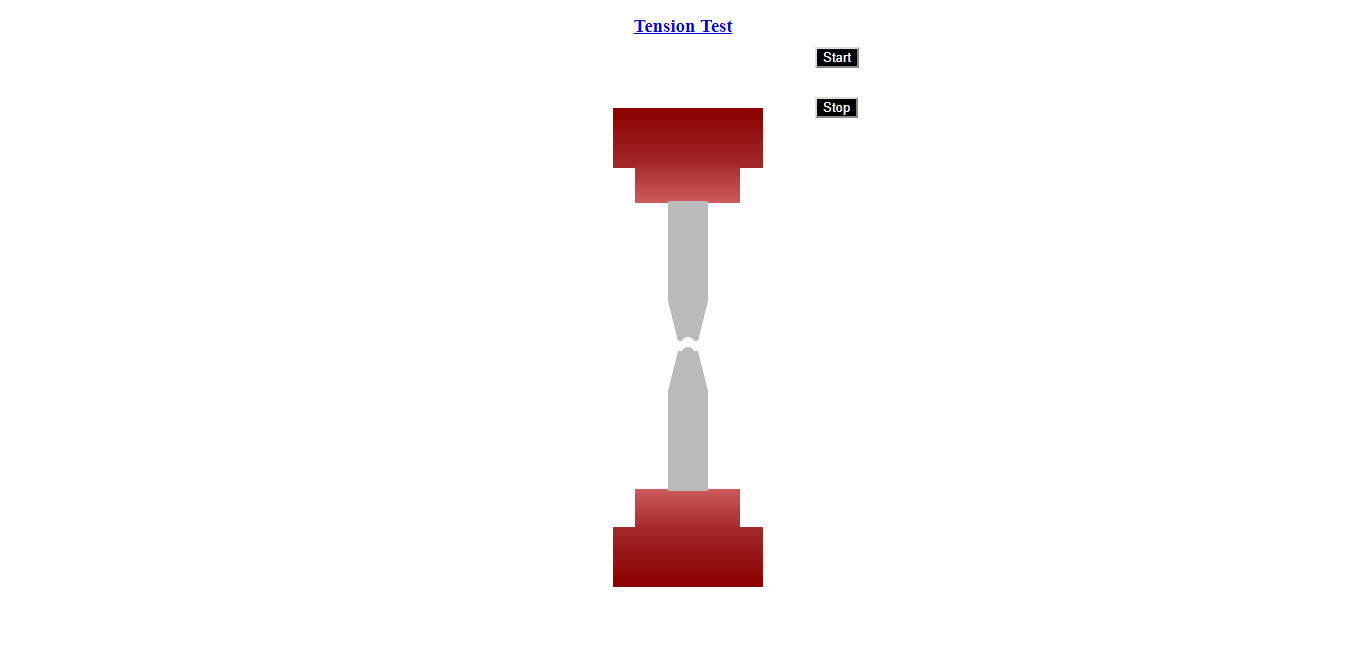
1. To run the experiment of tensile testing, click on ‘Start’ button.
2. After clicking on the ‘Start’ button, you can click on ‘Stop’ button whenever you want to stop the animation.



1. After clicking on ‘Stop’ button, you can click on ‘Start’ button to continue the simulation.

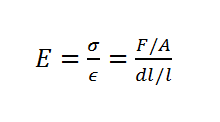
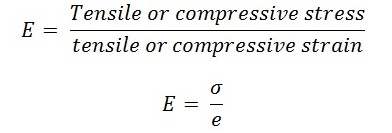


1. At the end the simulation looks like:



**Formulae used in the Experiment:**

* Hooke’s law defines the linear relationship between stress and strain within the elastic region.



Here E is modulus of elasticity or Young’s modulus.