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Elec 4907 Circuit Simulator

Build and simulate circuits right in your browser.


- Design circuits by inserting netlist
- Analog and digital circuit simulations
- Schematic, wiring diagrams and plots of netlist inserted
- No need to Install anything! Launch it instantly when needed on a [sample click](#).

Launch Circuit Office

[or watch a quick demo video →](#)

2.3 meters in 9 days - Niseko Powd...

Watch later Share

Watch on  YouTube


Description

Circuit Office(4th Year Final Project) is a a circuit simulator that resides in the cloud. It is implemented on the Google App Engine. Python, Html, CSS and JavaScript are used to implement this project on the Google App Engine. The project is broadly divided into the user interface, the part that involves constructing the equations to solve the system, the frequency-domain engine and the time-domain engine. Further


12/14/2016
★★★★★
Lol!!!! It was so helpful. Would be helpful if you could add a schematic to make the application more user friendly.

8/16/2016
★★★★★
Pretty decent!!!!

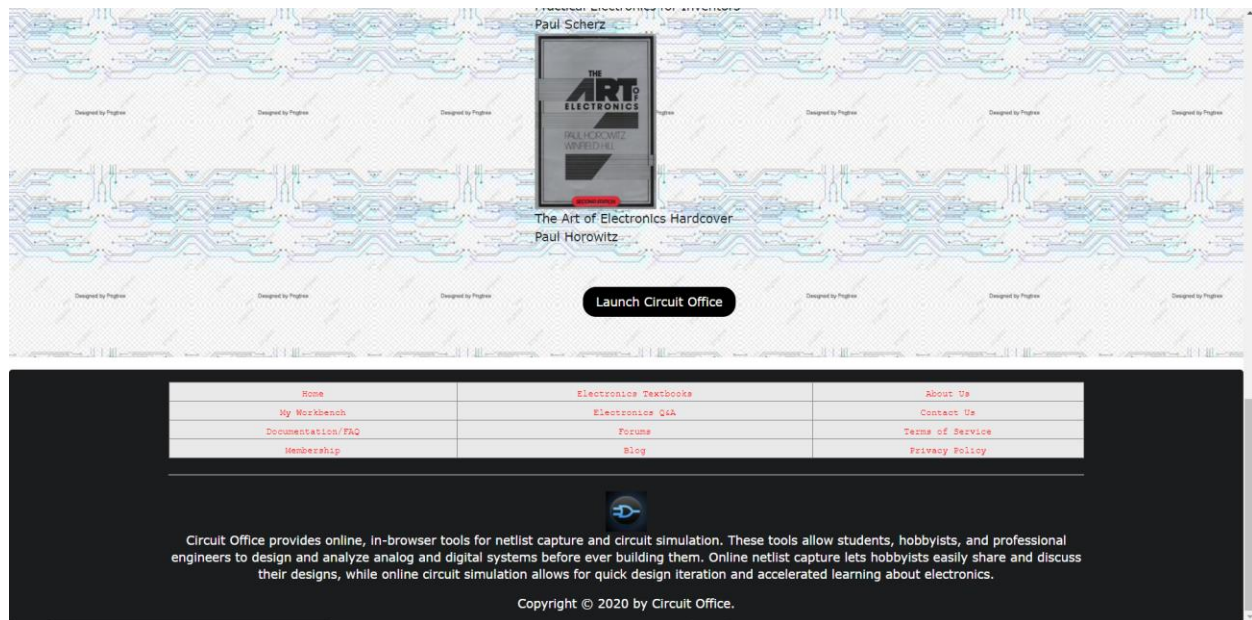
Related Technical Textbooks



Electronics: Circuits and Devices
Aldo Karlmann

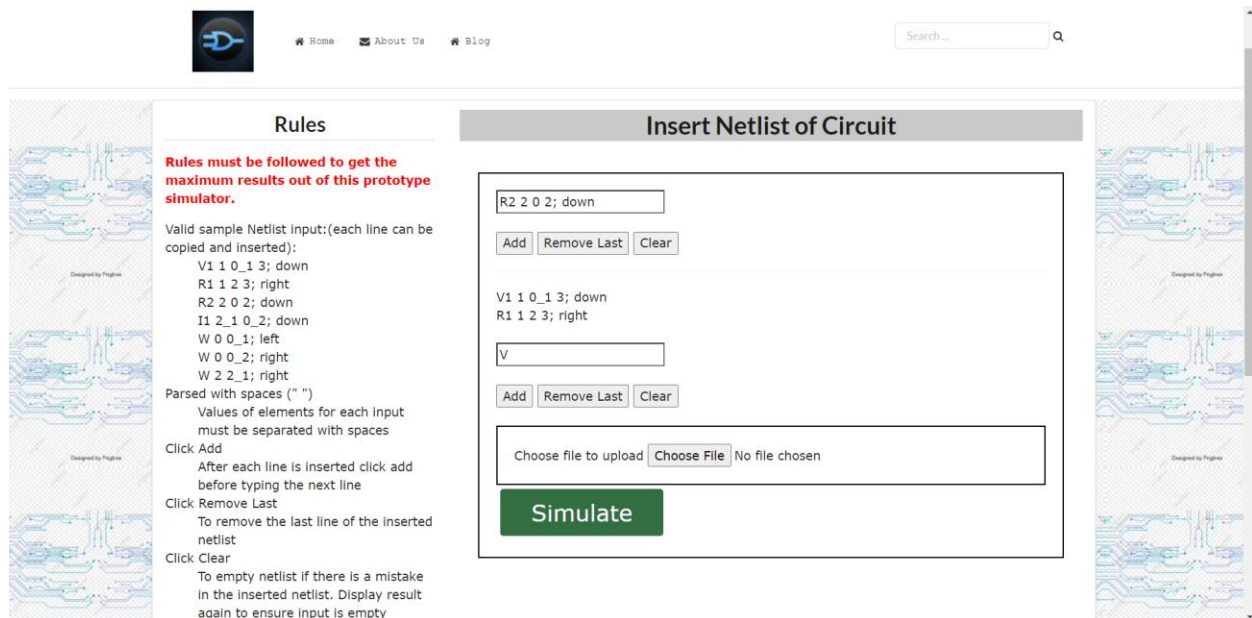


Practical Electronics for Inventors
Paul Scherz



When the Circuit Office is Launched:

User can directly insert input...



When the user imports the netlist of the circuit in:

The image is a composite of three screenshots from a web application and a file explorer.

Top Left: File Explorer
 A Windows File Explorer window showing the path 'This PC > Desktop > 4907 Final Project'. It contains a table of files and folders:

Name	Status	Date modified	Type
first_app	✓	2020-10-11 3:46 AM	File folder
project	✓	2021-03-04 7:20 AM	File folder
circuitnetlistimport	✓	2021-03-20 3:14 AM	Microsoft Excel C...

The 'File name' field shows 'circuitnetlistimport' and the file type is 'Microsoft Excel Comma Separated Values (CSV)'.

Top Right: Web Application Interface
 A web browser window showing a page titled 'Insert Netlist of Circuit'. It has a search bar, a 'Clear' button, and a 'Simulate' button. Below the search bar is a text input field with 'V' and buttons 'Add', 'Remove Last', and 'Clear'. A file upload section shows 'Choose file to upload' with a 'Choose File' button and 'No file chosen' text.

Bottom Left: Rules Section
 A section titled 'Rules' with the following text:

Rules must be followed to get the maximum results out of this prototype simulator.

Valid sample Netlist input:(each line can be copied and inserted):

```
V1 1 0_1 3; down
R1 1 2 3; right
R2 2 0 2; down
I1 2_1 0_2; down
W 0 0_1; left
W 0 0_2; right
W 2 2_1; right
```

Parsed with spaces (" ")

Values of elements for each input must be separated with spaces

Click Add
After each line is inserted click add before typing the next line

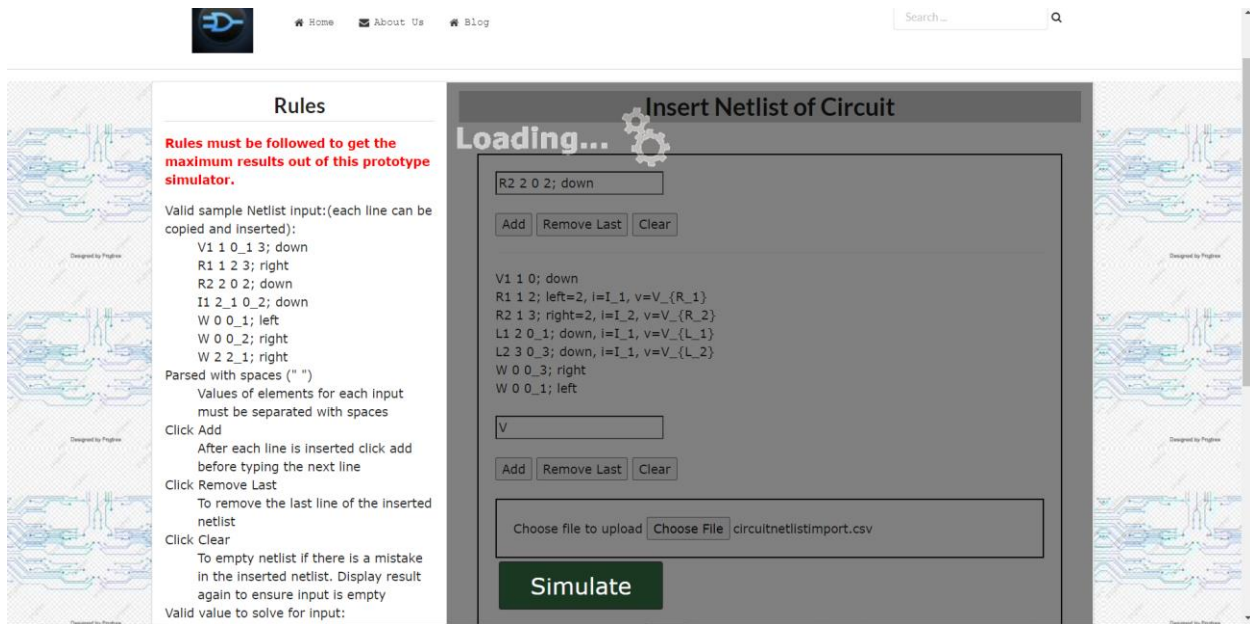
Click Remove Last
To remove the last line of the inserted netlist

Click Clear
To empty netlist if there is a mistake in the inserted netlist. Display result again to ensure input is empty

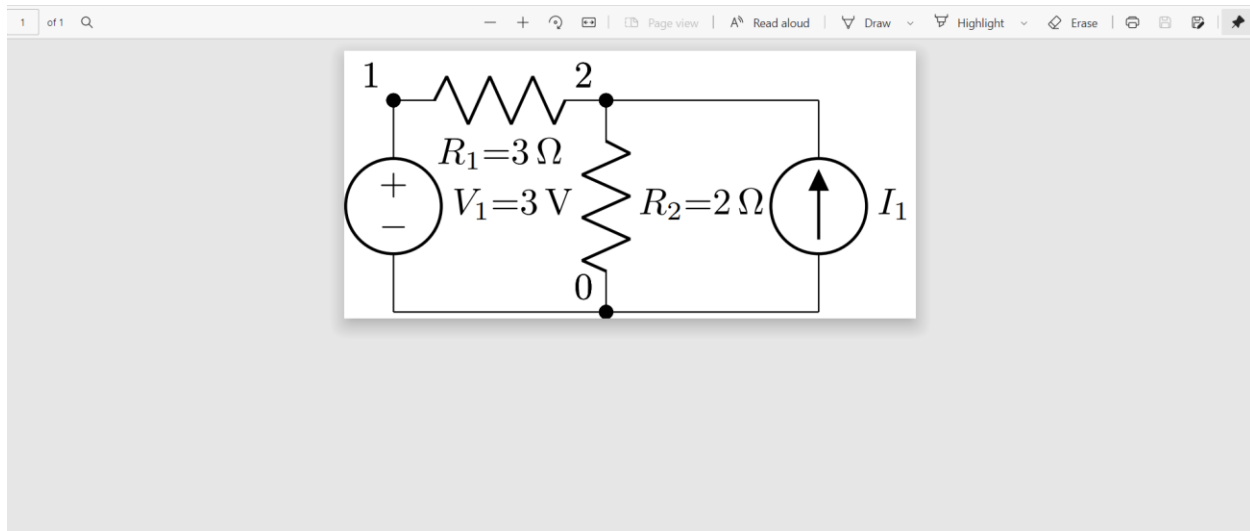
Valid value to solve for in/out:

Bottom Right: Web Application Interface (After Simulation)
 The same 'Insert Netlist of Circuit' page, but now the text input field contains 'R2 2 0 2; down'. The file upload section now shows 'Choose file to upload' with a 'Choose File' button and 'circuitnetlistimport.csv' text. The 'Simulate' button is still present.

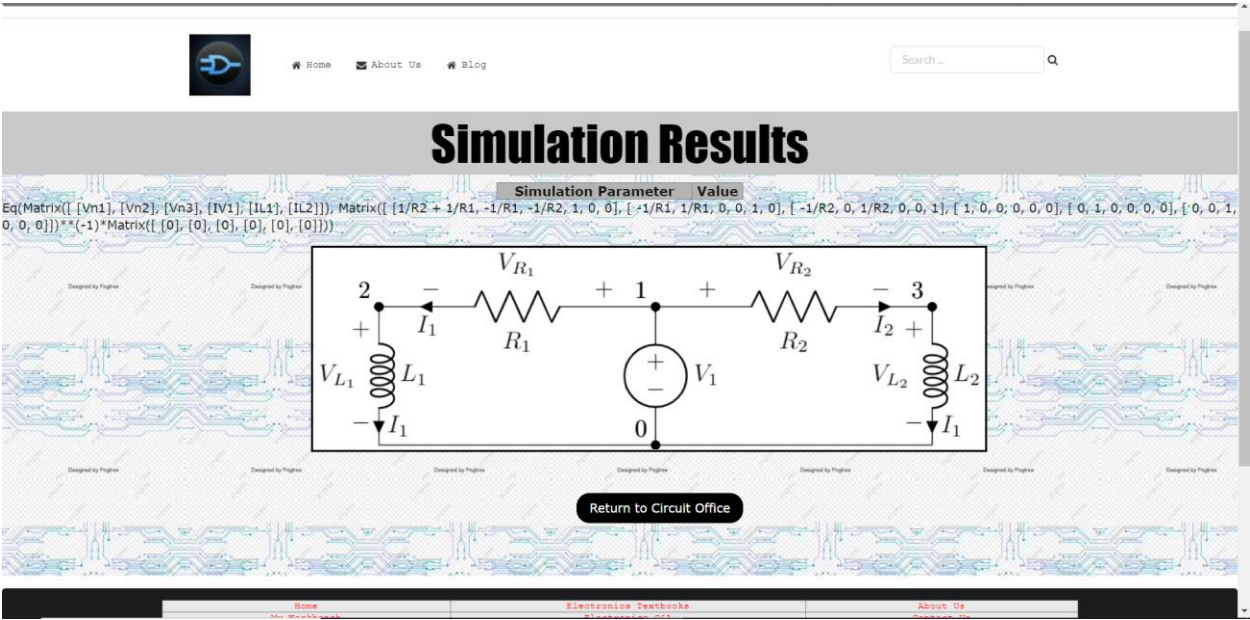
When the simulate is clicked after insertion:



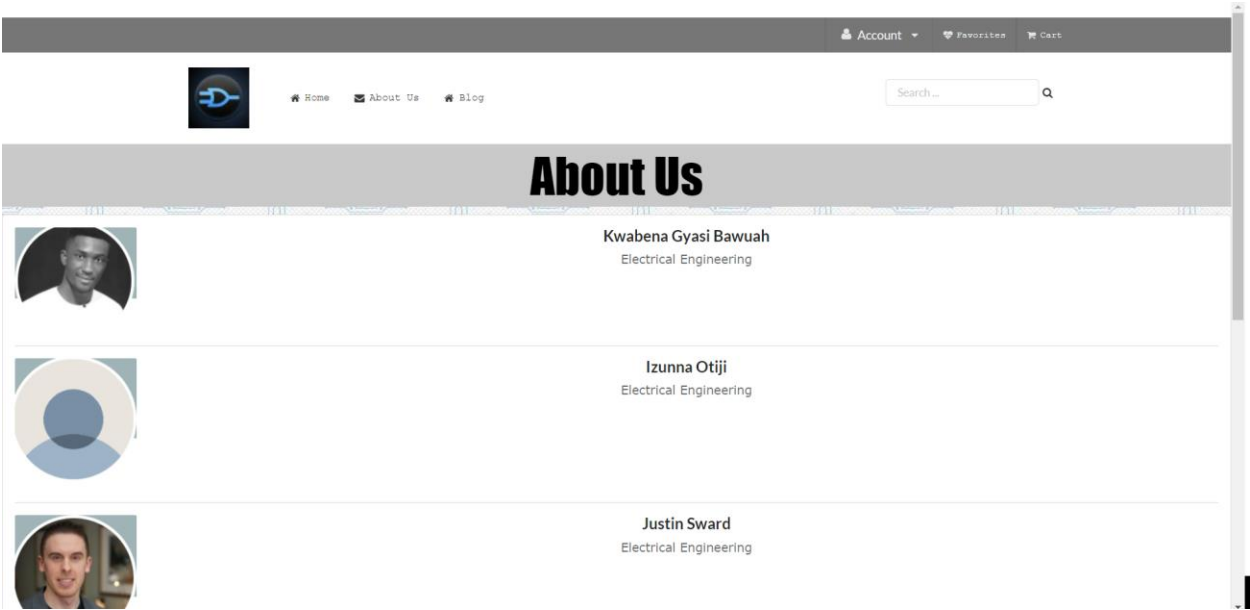
(For now, Image of the circuit is drawn and put in a pdf document) (Will not be seen by user) (backend)



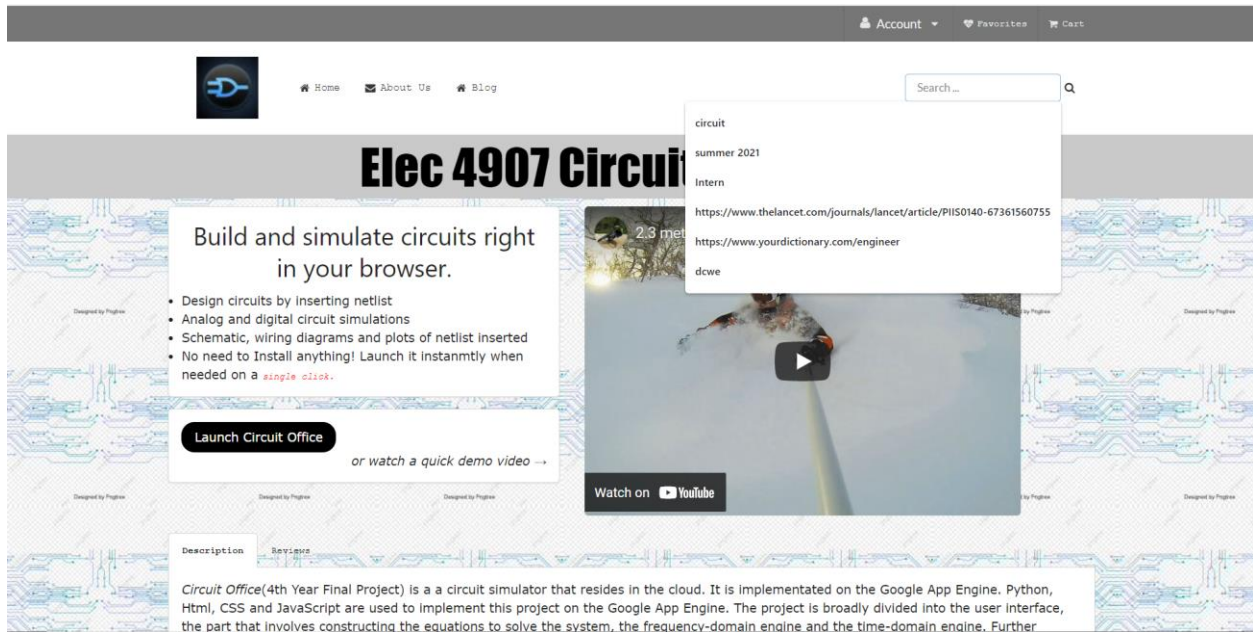
Values, graphs and diagrams to be this played on this page:



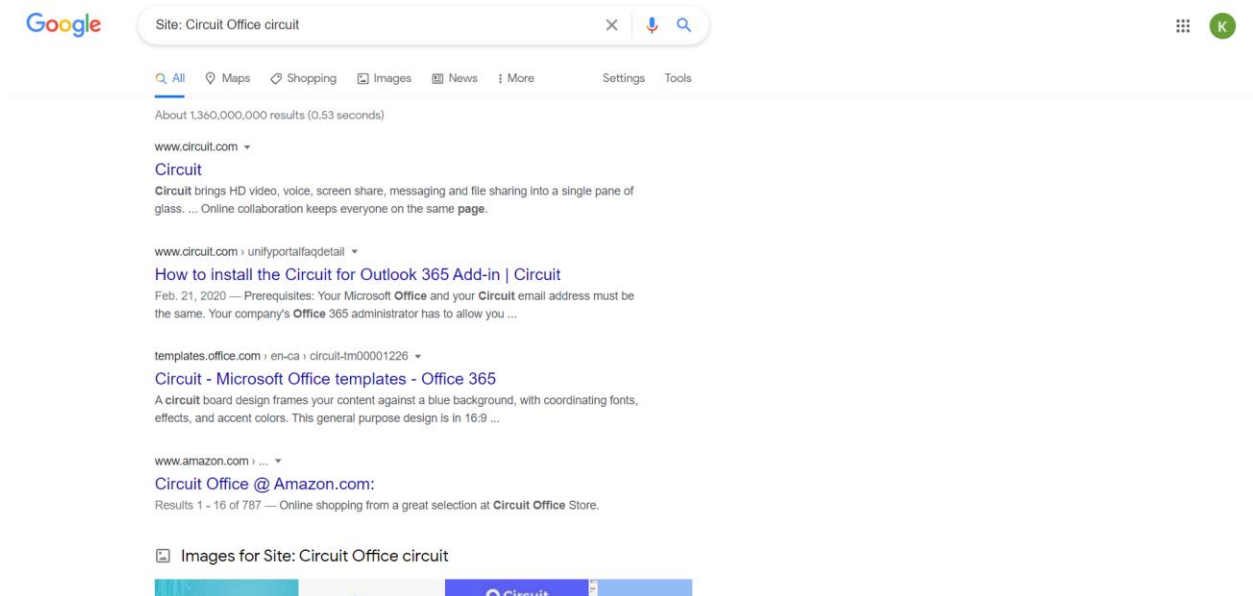
About page:



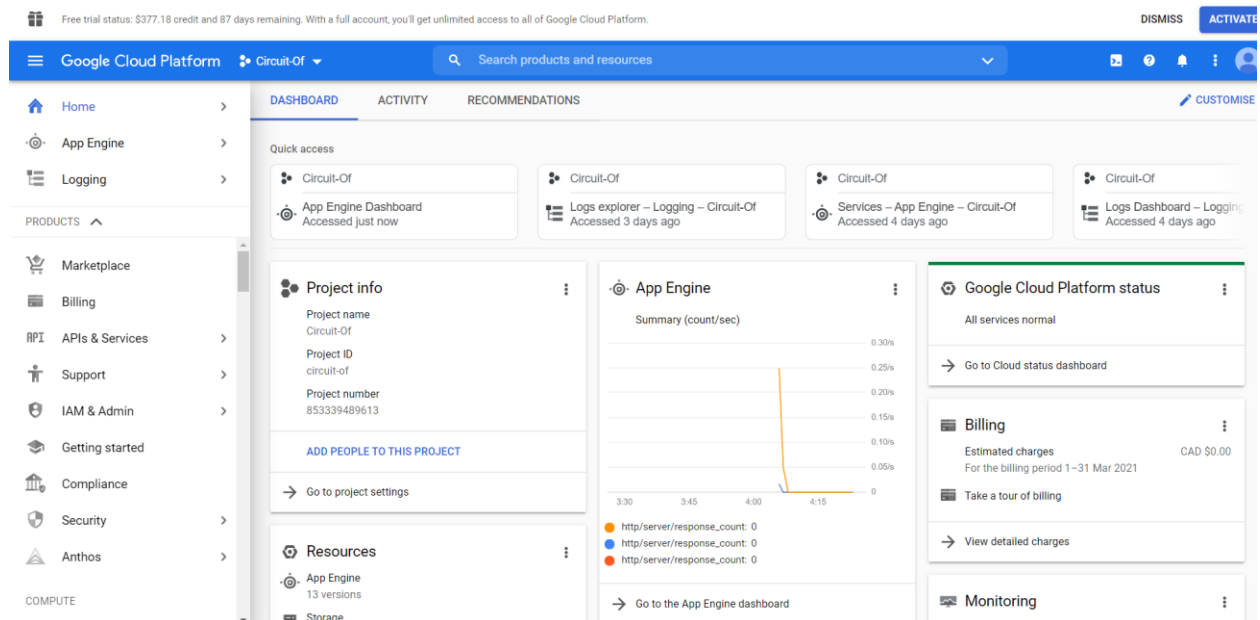
Search page:



Uses Google as its search directory.



Google Cloud Platform:



With the link of:

<https://circuit-of.ue.r.appspot.com/>

FUTURE WORK

- Upgrading the User interface towards a schematic (More user friendly)
- Getting values for single elements to the tables on the run page
- Option for voltage or current at an element or a complete analysis which include graphs.
- Getting the Simulation on the Google cloud platform to work.
- Security from malicious users and from wrong input without limiting the user
- Creating sessions using flask and databases so user's simulation history can be saved for quick referral without reinsertion
- Creating a cache to save user input so I user can change page and come back, and their input will still be available

FUTURE WORK

- Making the user interface more responsive to the user's device.
- Changing the domain name to make it easier for a user to run the application.
- Merging both the prototype and hybrid together

