EXPO 2022
engineering ▲ design

ELECTRIC BLOCKS II: REALISTIC POWER SIMULATION IN MINECRAFT

BACKGROUND

Electric Blocks I is a power flow simulation mod for Minecraft, allowing players to use Minecraft as an interface to construct virtual power systems.

OBJECTIVE

Electric Blocks II improves on EB1's usability with GUI, audiovisual presentation, and documentation updates. Also introduces new blocks, adding more options for power systems constructed in the mod.

VALUE PROPOSITION

Electric Blocks I brought accurate power flow simulation to Minecraft, but needed polish and quality of life improvements to be viable for its stated educational and engineering purposes.

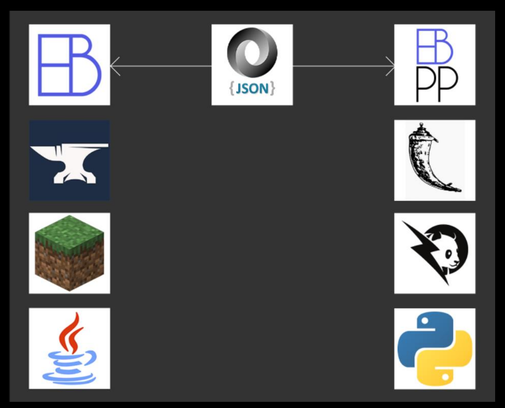
Electric Blocks II adds improvements to UI, audiovisual presentation, and documentation to aid in usability.

REQUIREMENTS

"You have the freedom to do whatever you want, as long as you're proud of it by the end of Capstone Design."

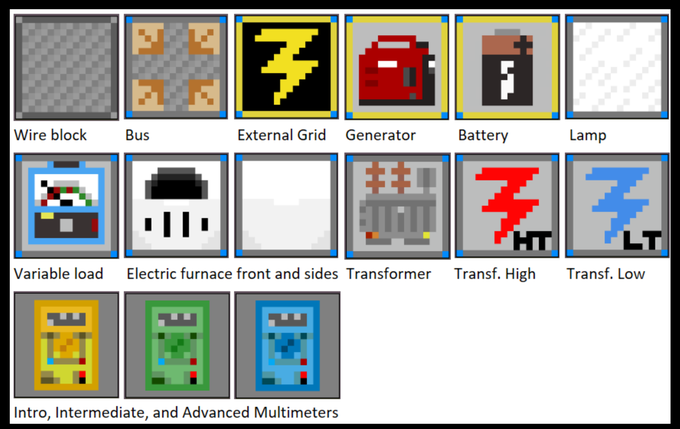
CONCEPT DEVELOPMENT

Guided by existing documentation from the previous team in the form of various webpages and diagrams, such as the tech stack below.

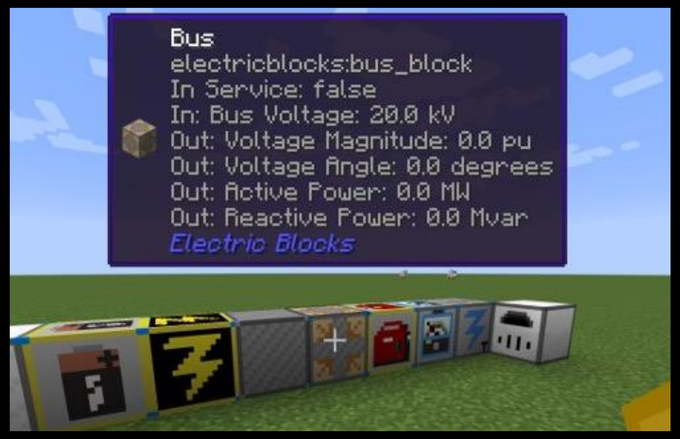


THE FINAL DESIGN

Retextured, colorblind-friendly blocks and items!



"Here's What You're Looking At" mod integration, for at-a-glance power info.

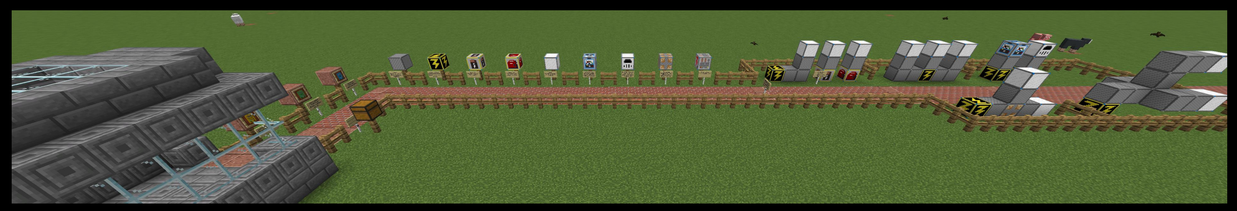


Improved documentation on the project website, along with a new handoff document.

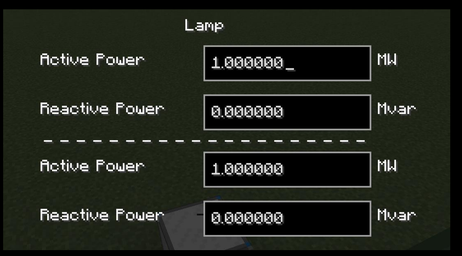
New Battery and Electric Furnace blocks.

New Beginner, Intermediate, and Advanced multimeters with GUIs (top right).

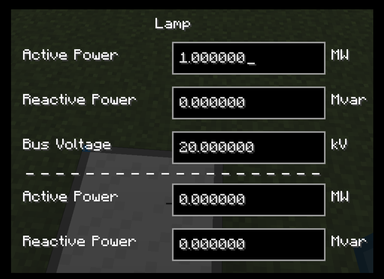
Orientation map (below).



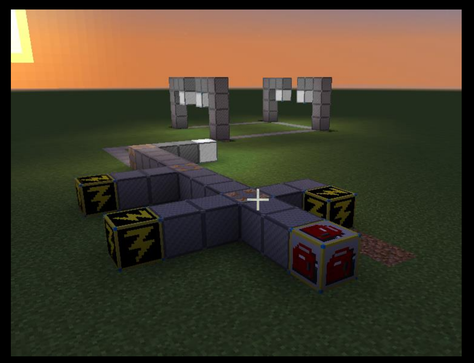
Beginner



Intermediate



Advanced



SUMMARY

Electric Blocks II lowers the barrier of entry for users of any experience level to dive into the complex topic of power flow. Additionally, Electric Blocks II allows users to create and test power systems in a collaborative and easy-to-use environment.

RECOMMENDATIONS

Electric Blocks can still be expanded. Future teams could implement:

- Presets for electrical elements
- 3-phase power
- Time-based electrical elements

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