The Web as a Rube Goldberg Machine

Design brief:

The Web was built around the concept of requests and responses - a constant back and forth between a server on the Internet and a browser on your computer. As it grew and expanded the need arose to get exchange going not just between a person and a machine but among many machines.
A user initiates a single action - a click of a button, a text entry, a page scroll - and the browser triggers a chain of events, most of them hidden behind the veil of the Cloud, to pass around some data from one server to another, like a ball in a pinball machine. The data can be used to request other data, to trigger different responses from servers, to capture more data. It can be formatted, rearranged, displayed in different contexts, - juxtaposed with other data.
In the spirit of Rube Goldberg's fascination with the mechanism over the end result - how can we build similar systems in the digital realm? What kind of data could be passed around? With services could be chained together to produce some unexpected outcomes? What would the triggers look like - and the end results? None of those need to be practical, efficient or even reasonable - the focus is on the celebration of the chains of events and the mechanisms that enable them.

Tools:

Accounts:

- GitHub
- IfTTT
- Slack/Discord

Tools:

- VSCode
- NodeJS, NPM
- NGrok
- ExpressJS
- JSON
- Kasa Plugs: https://www.amazon.com/TP-LINK-HS103P2-Required-Google-Assistant/dp/B07B8W2KHZ?ref_=ast_sto_dp
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Learning outcomes/deliverables:

Homework 1: a proposal with a system diagram outlining the dashboard interface for triggering actions and displaying results, the services (APIs) to be used, the chains of events constructed and the data passed around.

Homework 2: a simple web application built in ExpressJS that triggers a chain of events and facilitates the display of inner workings of the mechanism and the resulting outcome.

Schedule:

Week 1	Friday, January 22, 2021	Rapid intro to GitHub - 30 min Presentation on the web components: protocol, tools, technologies and methods. Covers TCP/IP, HTTP, HTML/CSS/JavaScript, WebHooks, APIs (REST) - 1 hr Workshop: Connecting a GitHub repo to IfTTT to Slack or Discord - 1 hrs
	HOMEWORK	Create a proposal with a diagram, outlining the triggers, the events and the outcomes
	Office hours Tuesday Jan 26 9:30-11PM	Review proposals, suggest tools and research
Week 2	Friday, January 29, 2021	Reading review - 1hr Workshop: building a local webserver (with tunneling) to render a dashboard and allow to trigger and receive various events - 2hrs
	Office hours Tuesday Feb 2nd 9:30-11PM	Workshop: add programmable devices to be controlled from the custom online dashboard.
Week 3	Friday, February 5, 2021	Project 1 delivery, reading review
	Office hours	documentation/tech. support

Groups:

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