Rationale Document: Things to Consider

STEM+C x Engaging Learning Lab

Introduction

Stakeholders

The Engage Team is developing the interface and operational component of the STEM+C research project.

Profiles

User Needs

System Architecture

Sequence Diagrams

Technical Implementation

List of each technical dimension of the project and the rationale behind selecting and implementing the respective tool

Blockly Interface

Developers

- Dakota Rennemann
- Nicholas Ionata
- Pedro Feijoo

Description

Blocky is a javascript library that injects a block building canvas on a web view. An interface for blockly is needed to translate the blocks to arduino code.

Link to Github

https://github.com/EngagingLearningLab/blockly-arduino-interface

Implementation Options

A design matrix was created to outline the various feature requirements and available options.

Design Challenges

A lot of the existing tools contained a lot of bloat. It took a while to cut through that and see which files were truly necessary. Additionally, the process of gathering and refining the requirements took some time as we discovered some of them during the research phase.

Design Rationale

Content Management System

Developers

- Nicholas Ionata

Description

Building CRUD functionality is very routine and time consuming. Using a headless cms will allow us to build out a backend quickly and manage all of the content with an admin panel.

Link to Github

STRAPI
https://github.com/EngagingLearningLab/STEM-C/tree/test-strapi/server

Implementation Options

https://www.cmswire.com/web-cms/13-headless-cmss-to-put-on-your-radar/
https://www.webiny.com/
https://strapi.io/ - incredible tool, in beta
https://ghost.org/ - built for delivering static content (blogs)

Design Challenges

Design Rationale

Feature USB Connections

Developer

Description

Link to Github

Implementation Options

- Web USB API
- Serial API

Design Challenges

Design Rationale

Feature Flash USB

Developer

Description

Link to Github

Implementation Options

- WebUSB API
- Serial API

Design Challenges

Design Rationale