Code Blocks

BDM Educational Products

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Mission Statement

"Building wheels for the engine of creation."

But First, Some Statistics

In a study of US Students aged 16-23:

- 58% believe in that coding is essential

- >45% are currently coding or learning to code

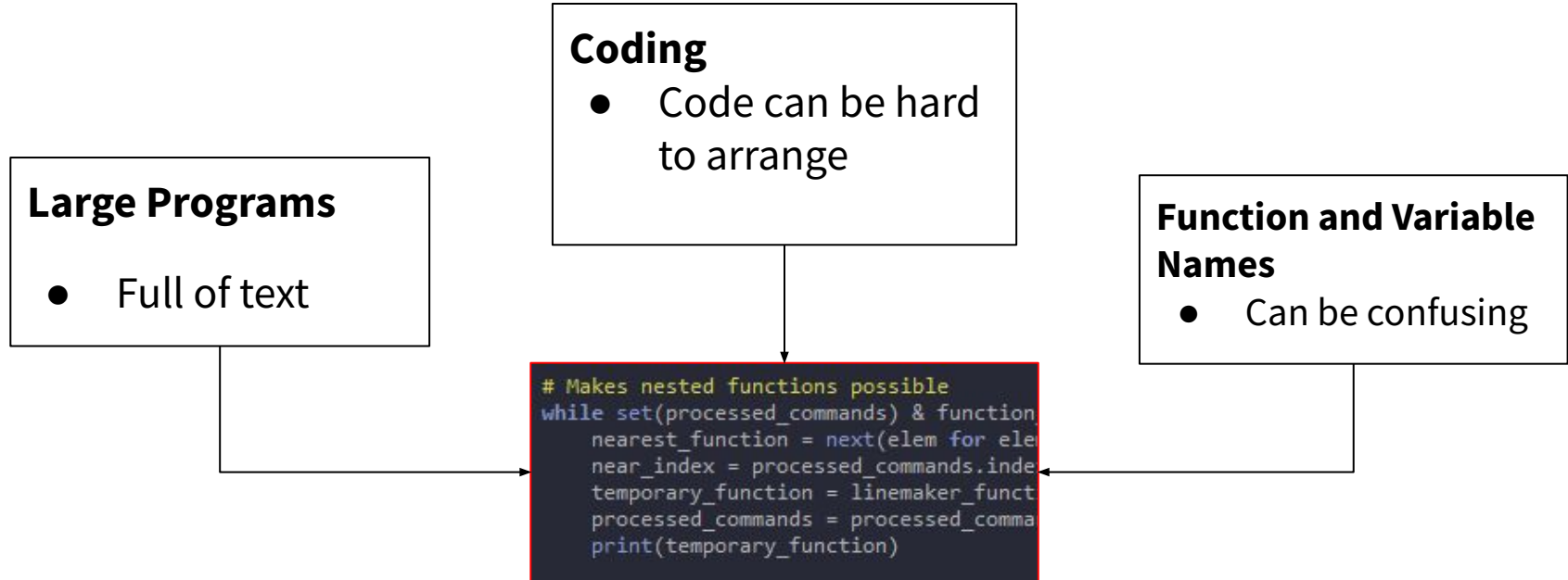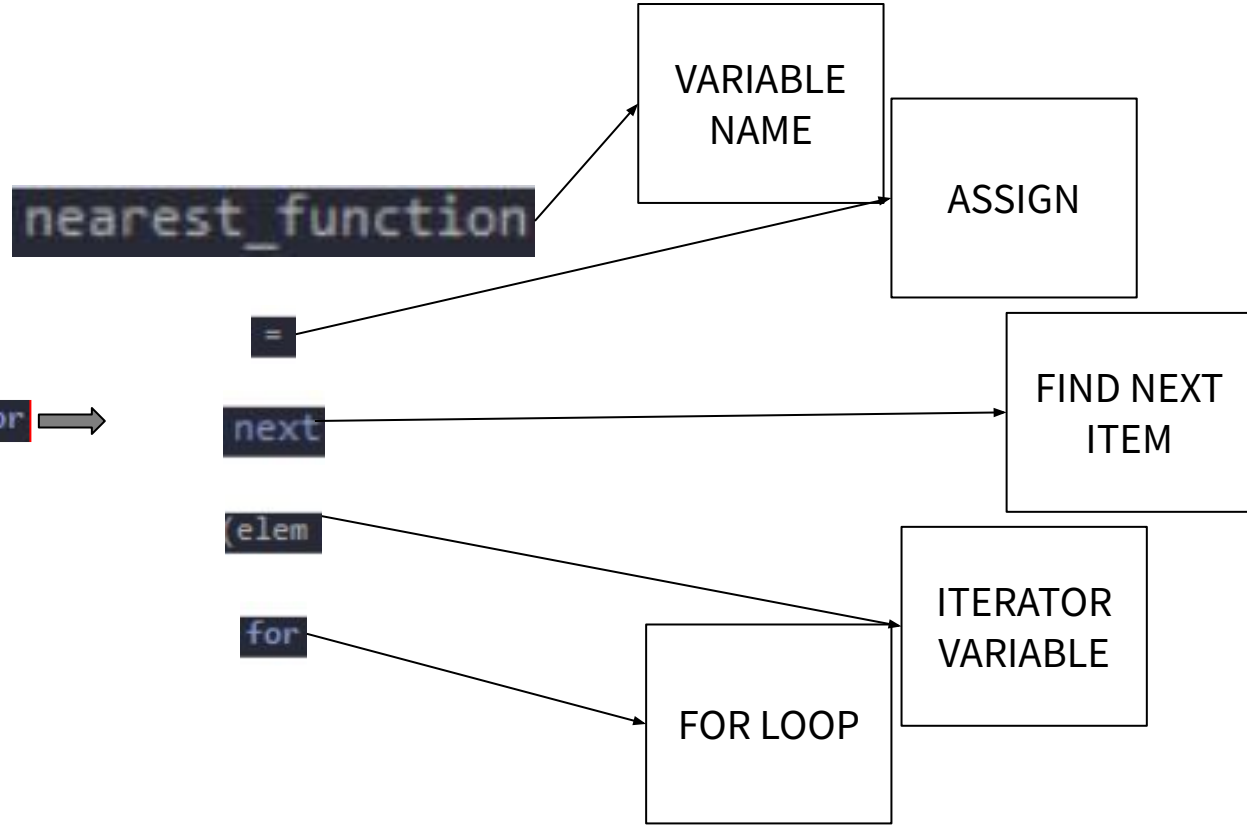- > 50% plan on learning to code eventually

But why not more?

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The Problem

Coding
- Code can be hard to arrange

Large Programs
- Full of text

Function and Variable Names
- Can be confusing

```
# Makes nested functions possible
while set(processed_commands) & function
    nearest_function = next(elem for ele
    near_index = processed_commands.inde
    temporary_function = linemaker_funct
    processed_commands = processed_comma
    print(temporary_function)
```

Figure 1: Code Snippet

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The Solution

VARIABLE NAME

ASSIGN

One line of code

`nearest_function`

`=`

`nearest_function = next(elem for`

`next`
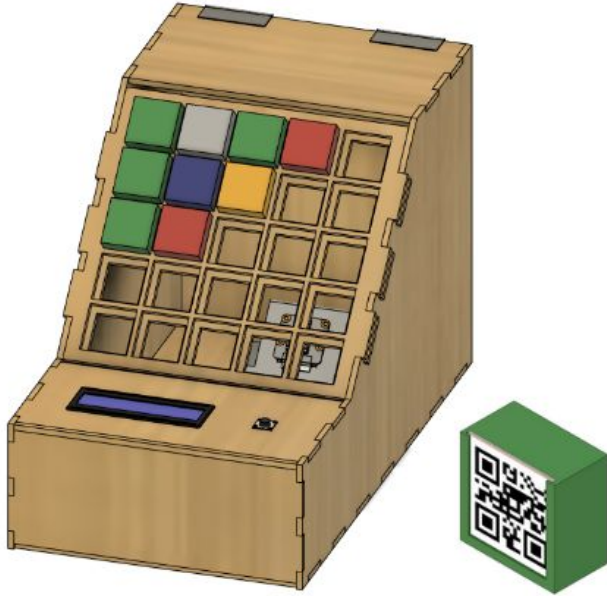
FIND NEXT ITEM

`(elem`

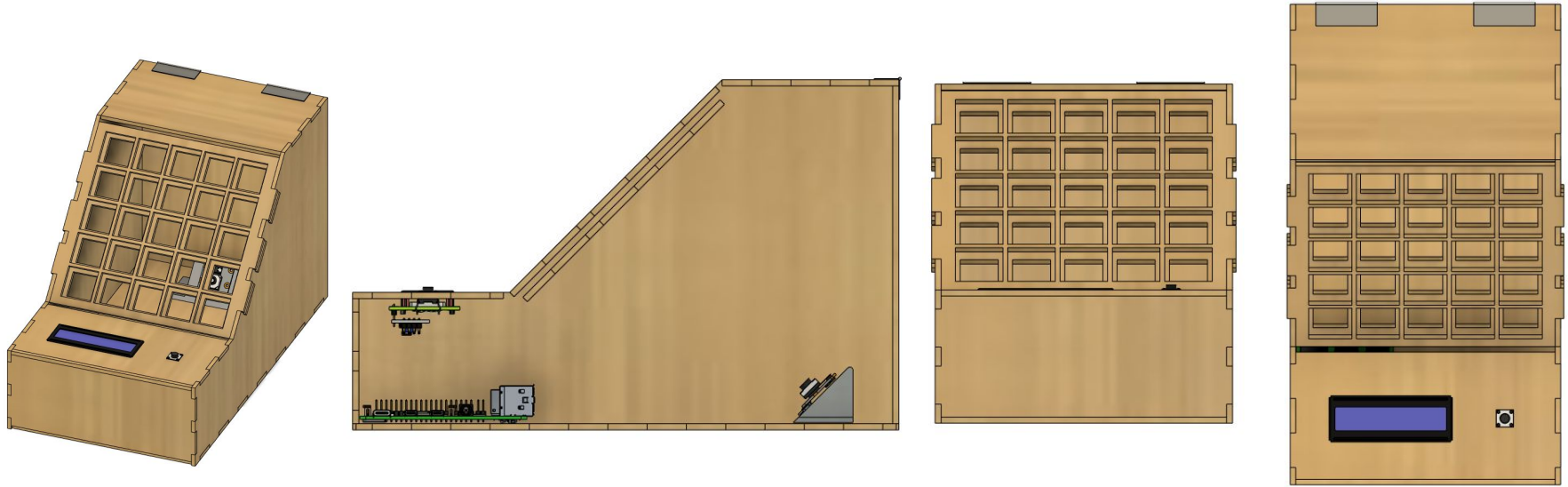`for`

ITERATOR VARIABLE

FOR LOOP
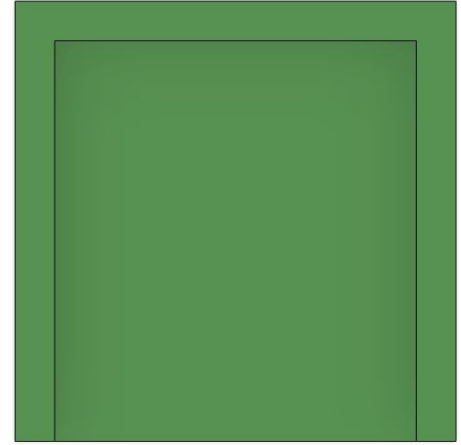
Product Objective
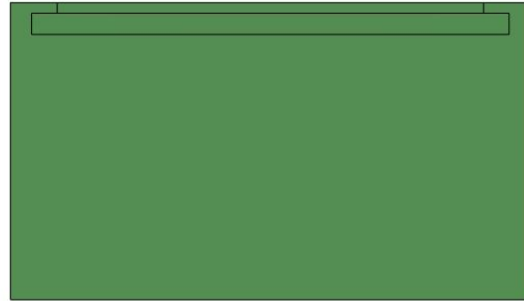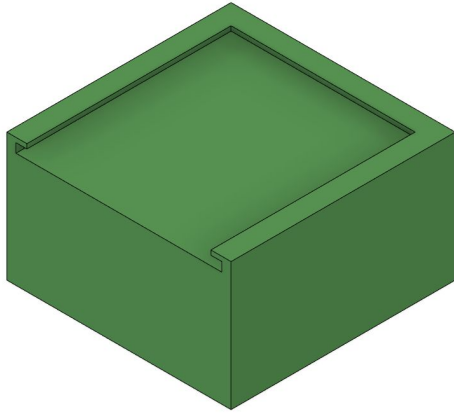

Figure 2: BDM Code Blocks

- Aims to teach code by simplifying text into individual blocks

- Turns blocks with QR codes into executable Python programs

- Product helps beginners by teaching ways of reading code

- Highly customizable

Product Description

Figures 3-6: Isometric, Side (opened), Front, and Top Views of Product

Product Description

Figures 7-9: Isometric, Front, and Top Views of Block
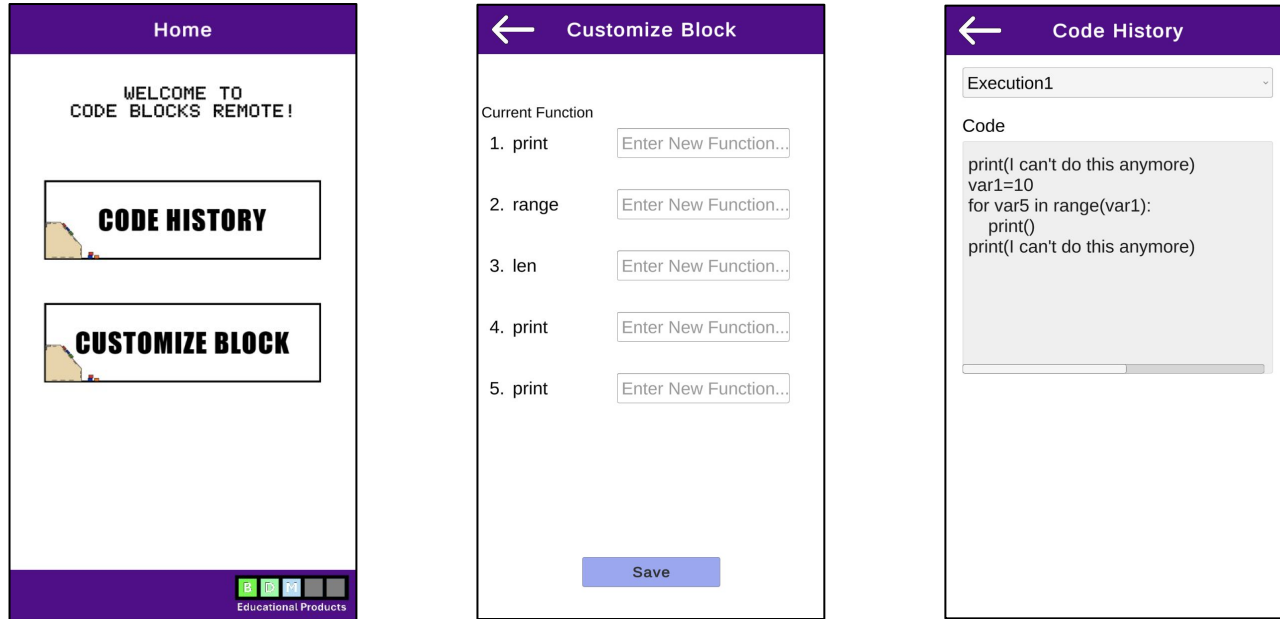
Product Description

Figure 10-12: Home, Customize Block, and Code History Screen from CODE BLOCKS REMOTE

Product Description

Software Features:

- Arranges decoded QR codes

- Returns error message if something goes wrong

- Google Sheets Integration
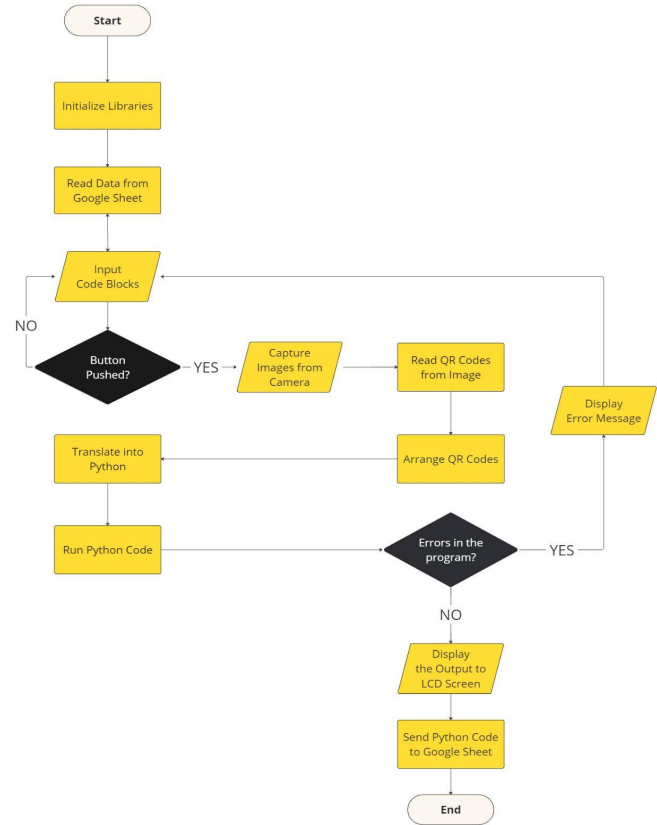
- Complementary Mobile App

Figure 13: Code Flowchart

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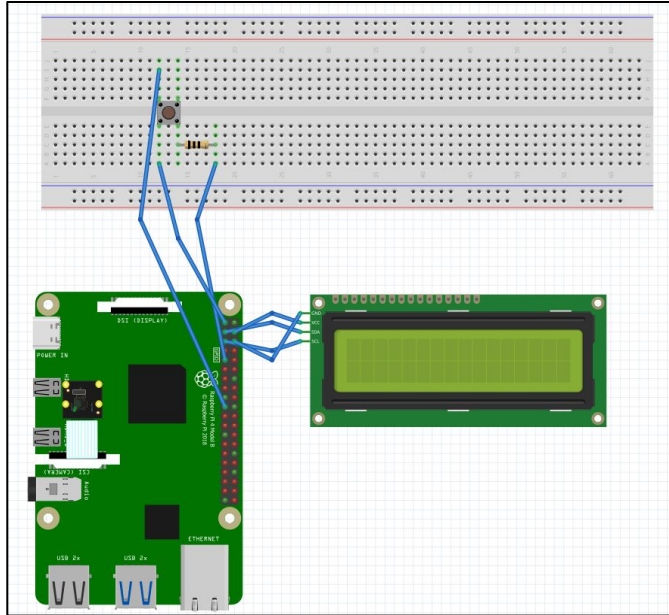
Product Description

Figure 14: Circuit Diagram

Camera connected through camera port.
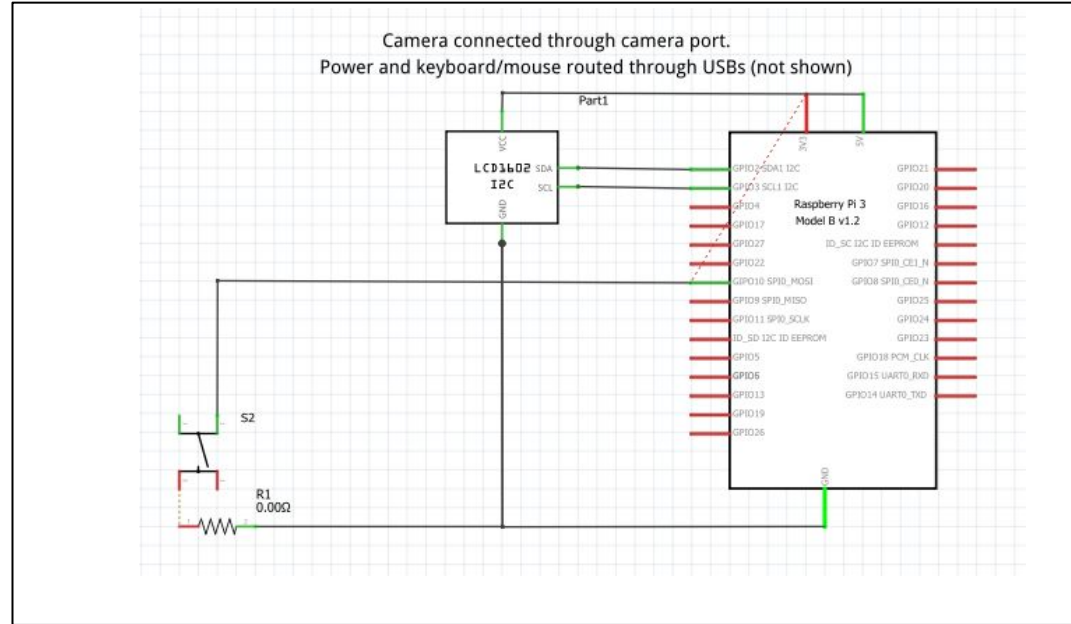Power and keyboard/mouse routed through USBs (not shown)

Figure 15: Schematic Diagram

Product Purpose & Features

- Designed to assist novice coders

- Reads blocks and returns executable
  Python code

- Easy to read & manipulate
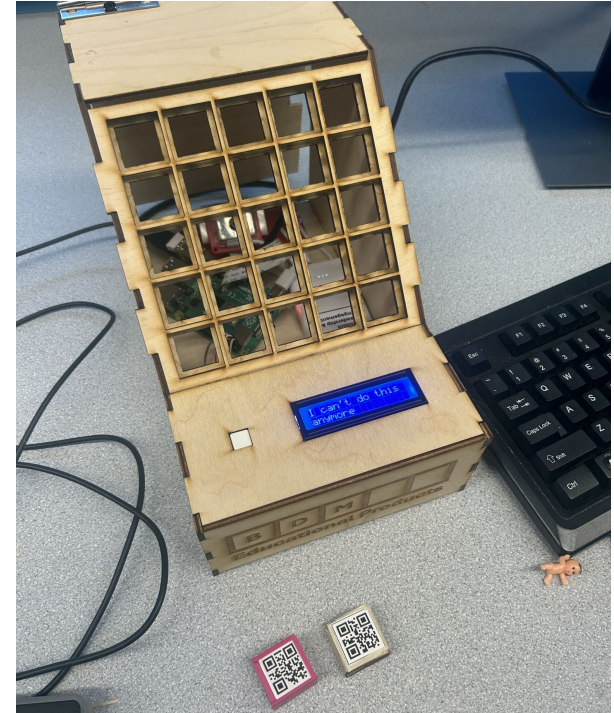
- Complementary Mobile App, "Code Blocks
  Remote"

Figure 17: Physical Prototype

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Future Goals

- Cut Production Cost

- Add Additional Functionality:

  - Add new Python features such as methods and imports

  - Increase size of grid and display

- Improve Our Mobile App, "Code Block Mobile"

  - Improve user interface designs

  - Execute code from device on Mobile App