



E100 Project Presentation

By Yanlei, Henry, Jordan, and Sam

Table of contents

01

Goal/Vision

02

The Prototype

03

Development
Process

04

Future Work

05

Q&A



The Multi-Cube



+



+

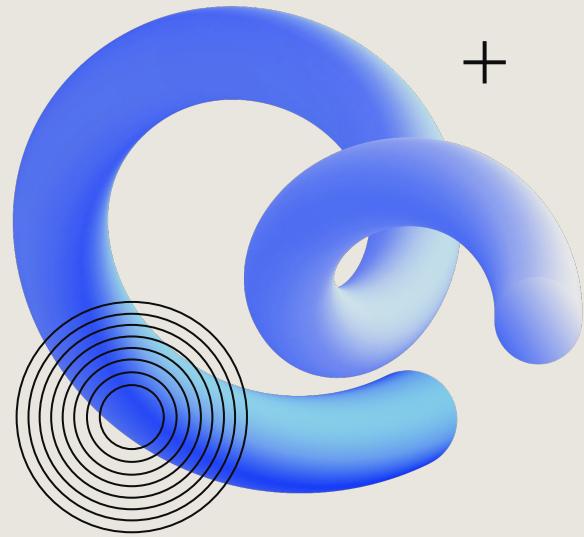
...

01

Goal/Vision

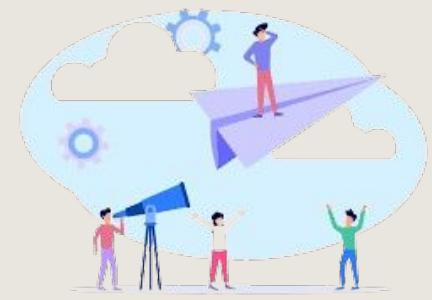
+

.....





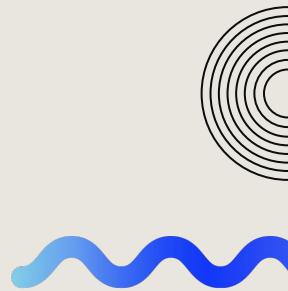
Task



Design and create an educational microprocessor-based toy for Innovation Blue Labs



+



Vision



- Provide enjoyable and enriching experiences to every child
- Motivate children to explore, discover, and acquire essential skills as they interact





Major Product Criteria



Educational: Engage children in enjoyable learning experiences

Easy to use: Ensure children can easily interact with the toy and grasp its functionalities effortlessly

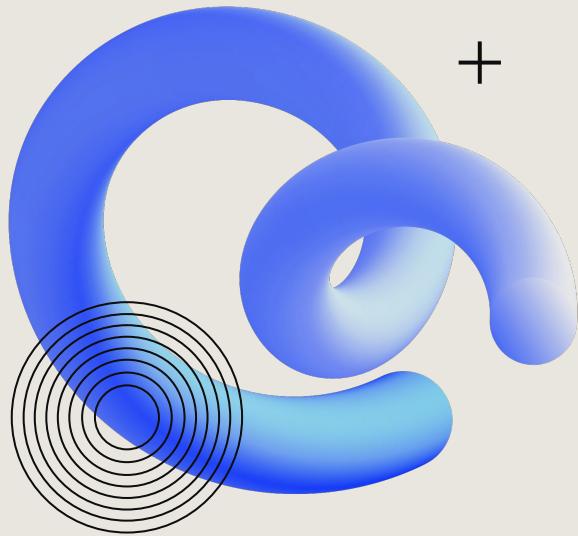
+

Safe: No potential hazards for children

⋮

Versatile: Multiple ways to engage users

STEM + Creativity



+



02

The Prototype

+

.....

Capability of the prototype

Multiple game modes

On/Off switch

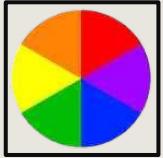
Six different buttons to interact
(corresponding to 6 different colors)

.....

+

Game Modes and Color Buttons

User could select one of the game mode to play in beginning page



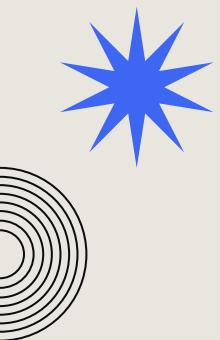
Jordan Says



Code Breaker



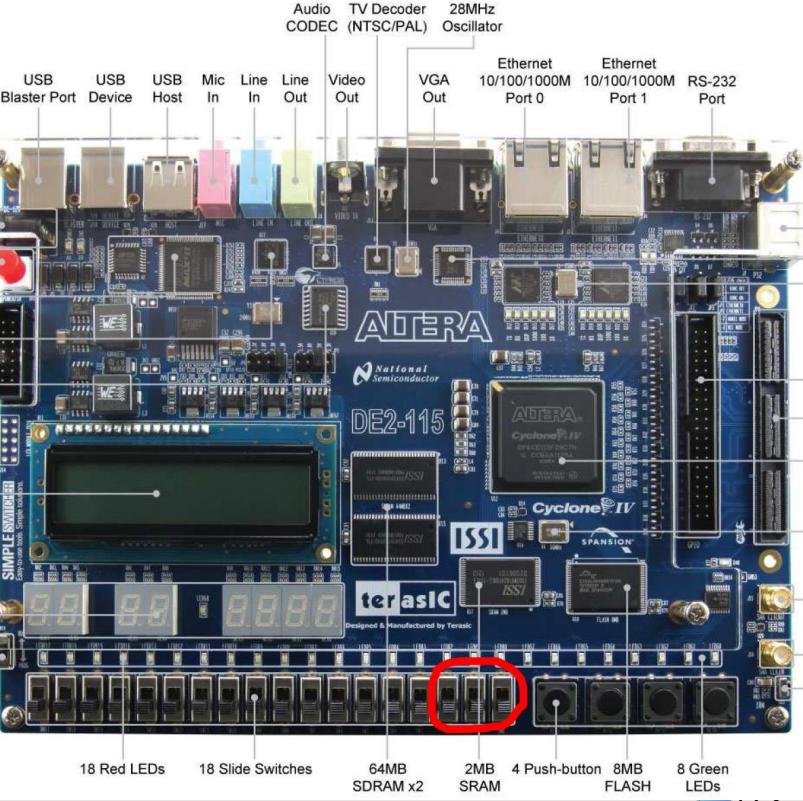
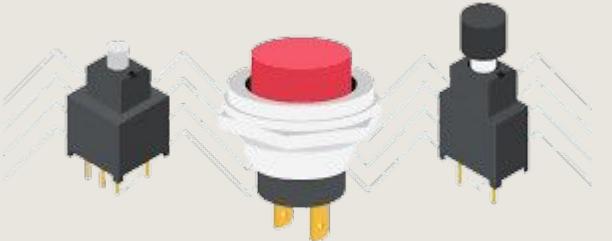
Music Mayhem



+

Turn on/off switch

A switch controls the device's power, allowing users to quit the game using this switch.



Button Screens

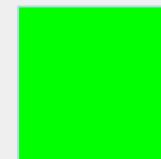
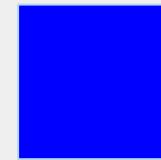
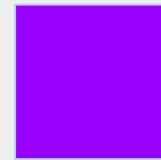
Game Select

Jordan
Says

Code
Breaker

Music
Mayhem

Game Mode



Design Decisions & Tradeoffs

Simplicity over Complexity

Quality over Quantity

6 squares only for each game

How we Meet the Criteria

Engaging and Educational

- 3 Modes promoting STEM and Creativity

Interactive and Easy to Use

- 6 buttons that light up and 1 switch

Safety and Parental Peace of Mind

- No sharp or jagged edges. Nothing to harm the user.

Good for children, good for parents, good for Innovation Blue Labs



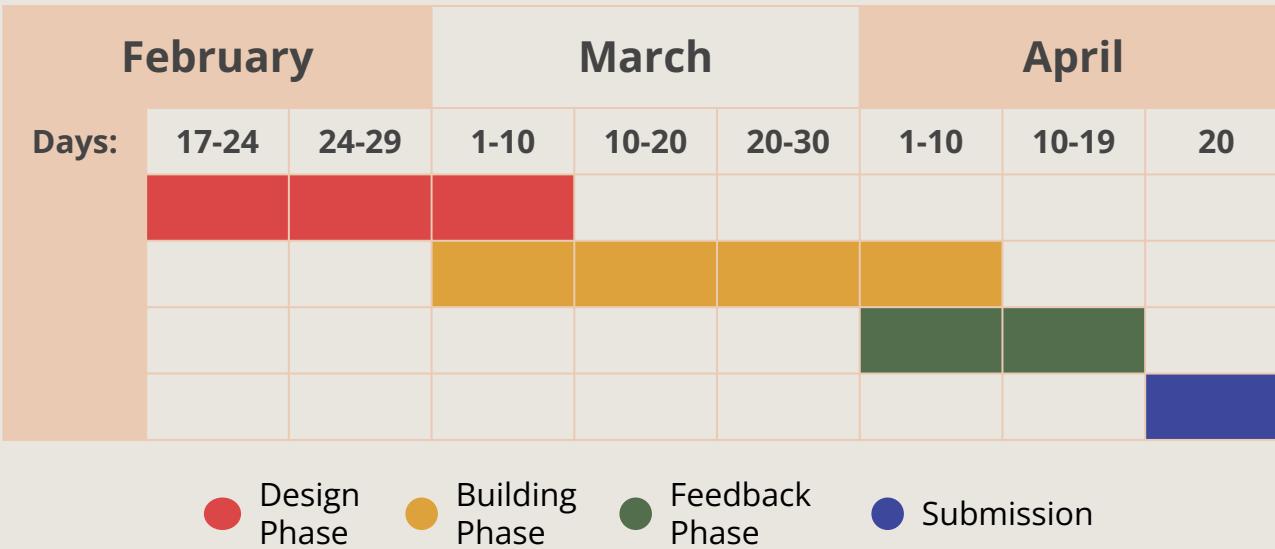
03

Development Process

+



Our Work Plan





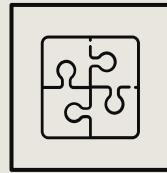
Successes

- Cooperation/teamwork
- Work plan
- Division of work
- Design process

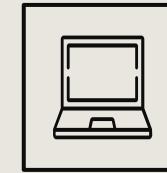
Challenges



Sound Synchronization

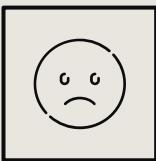


So Many Bugs!



SD Card / SDRAM

Changes

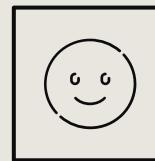


Only SD Card (old)

Poor response time

Distorted sounds

Pulls data from SD card
itself



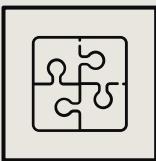
SDRAM (new)

Much quicker

Sounds actually normal

Loads data into the ram
then pulls

Changes

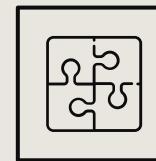


Music Mayhem (old)

Assign new notes

Keep track of past notes

Game ends on wrong input



Music Mayhem (new)

Notes already assigned

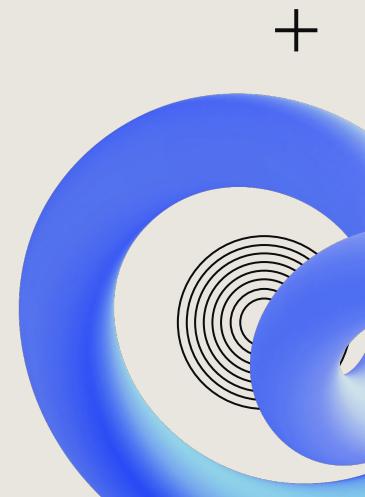
Open/Creative mode

Game ends by user choice

Less memorization, more creativity

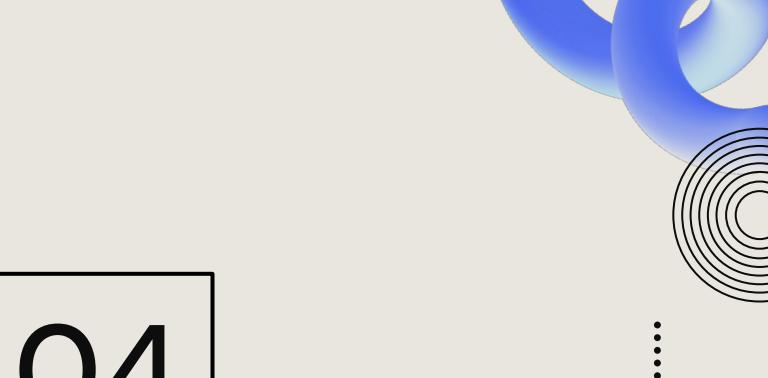


Important Aspects

- Project management
 - Google Drive
 - Communication
 - Google Chat
 - Teamwork strategies
 - Family Issues
- 



04



Future Work

Prototype to Final Product

Three sides color-labeled for mode selection

On/Off Switch attached to one of the corners

Buttons centered on each side of the cube

- Buttons light up instead of entire side

Battery and Charging port



+





Future Steps

Finalizing the design

- The toy's outer casing

More user testing

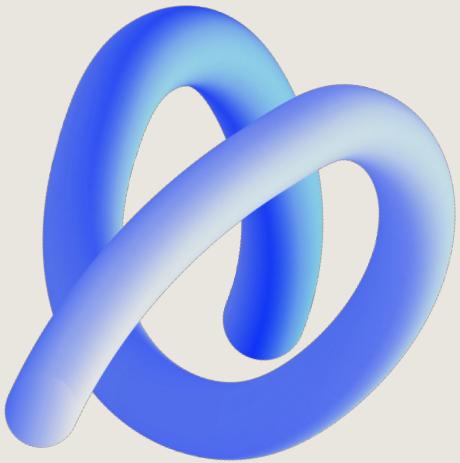
- Specifically children, the target audience

Increase game quantity

- Add more games (up to 6)

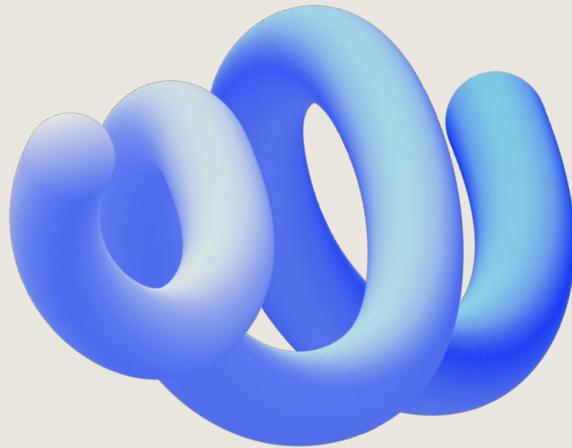
Add background music

+



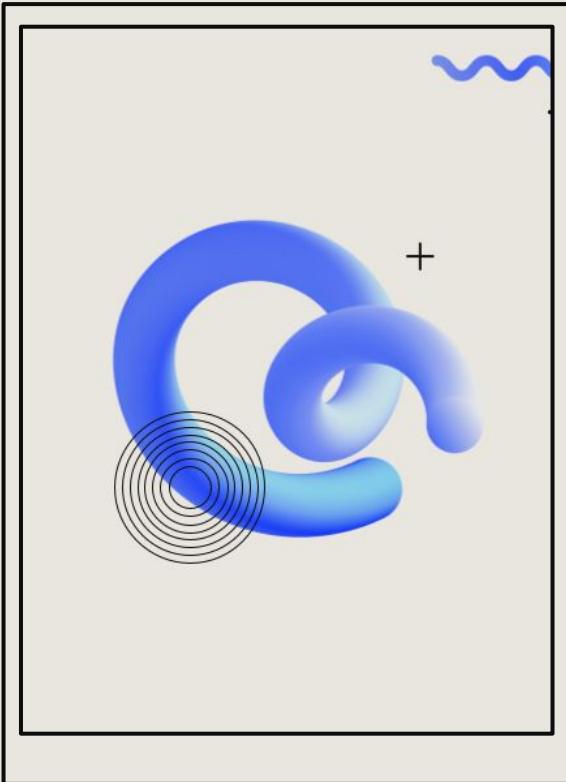
05

Q&A



...





ANY
QUESTIONS?



Thanks!