

Mission 10 Remix

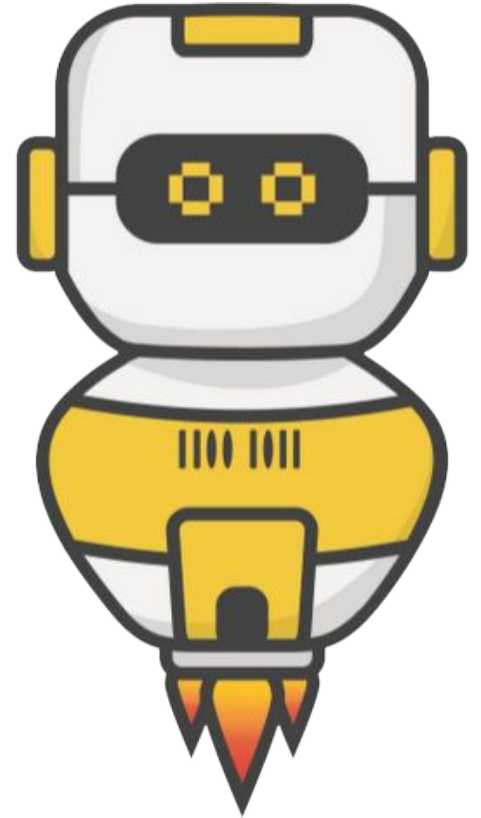
Create your own project from Mission 10



Warm-up

Mission 10 introduced a way to use the computer clock. You used it for timing your reaction to a light by pressing a button.

- What else could you use the computer clock for?
- Besides a light, what else can you measure your reaction to?



Time for a project remix!

A remix can be:

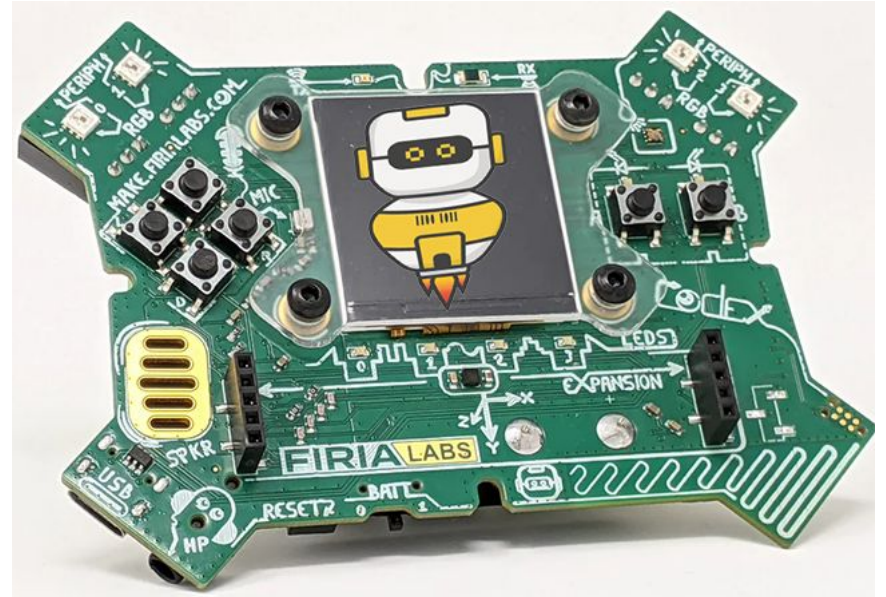
- A new program created by adding new code to a program you already created
- You can combine parts of two or more programs in a remix
- Use a similar idea in a different way



Project Remix

Creating a remix will let you:

- Improve your skills and practice the concepts from the mission
- Be creative
- Remember code from earlier programs and missions
- Work with other students
- Design an original program and write the code all on your own



Step #1

Review the mission

- Open your project from Mission 10
 - What does the program do?
 - What skills were used or concepts learned?

DO THIS:

- Fill out the information in the Mission 10 Remix Log for **Step 1**

```
from codex import *
import random
from time import sleep

def show_random_arrow():
    arrow = random.randrange(8)
    display.show(pics.ALL_ARROWS[arrow])

def spin_animation(count):
    index = 0
    loops = 0
    delay = 0.0
    while loops < count:
        loops = loops + 1
        display.show(pics.ALL_ARROWS[index])
        sleep(delay)
        delay = delay + 0.005
        index = index + 1
        if index == 8:
            index = 0

while True:
    if buttons.is_pressed(BTN_A) or buttons.is_pressed(BTN_B):
        spin_animation(20)
        show_random_arrow()

    if buttons.is_pressed(BTN_U):
        break
```



Step #2

Brainstorm ideas

- Read through remix suggestions from your teacher

Eight suggestions are on the next 4 slides. You can use any of these ideas or come up with your own.



Step #2 Remix Ideas



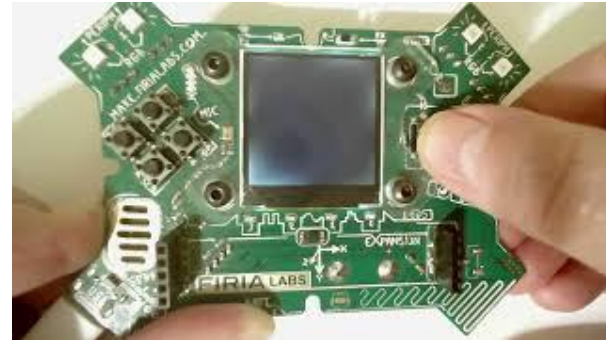
Mild-1A

The code inside the loop is very long. Create a function for the countdown code.



Mild-1B

Create a function that will give an introduction and wait to start the game (use the wait() function).



Step #2 Remix Ideas



Medium-2A

Create a list of colors, and select a random color for the display screen. Use the screen as the indicator instead of pixels.

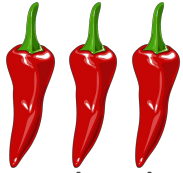


Medium-2B

Create a list of images, and select a random image for the display screen. Use the screen as the indicator instead of pixels.

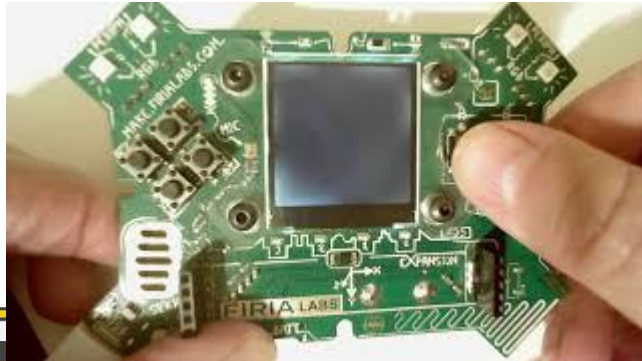


Step #2



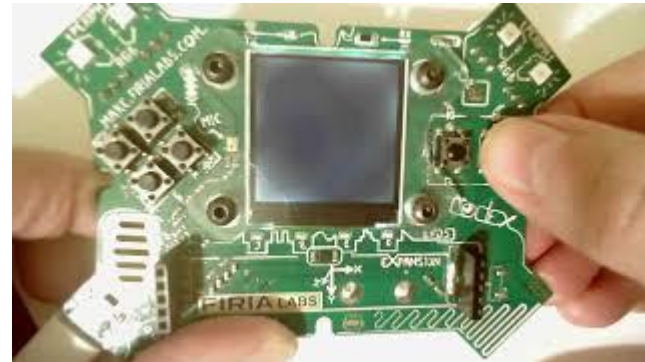
Spicy-3A

Make the reaction tester into a game. Use the average time of your reactions as the deciding point. If your time is better than average, add a point. As an option, also subtract a point for slower times.

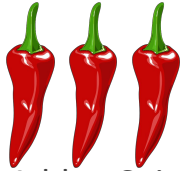


Spicy-3B

Use two images: one for Button A and one for Button B. Select a random button and see if the player presses the correct button. If so, add a point to the score.

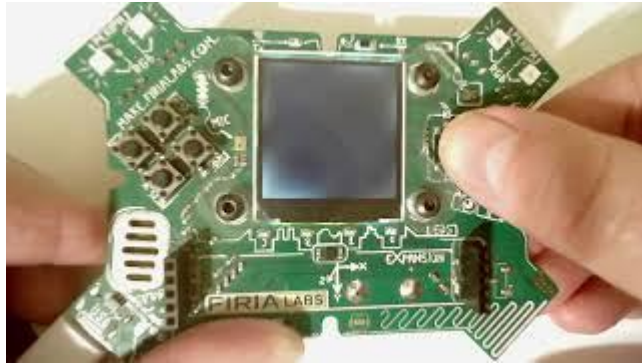


Step #2



Extra Spicy-4A

Add to Spicy 3A. Choose a way to win or lose the game. Here are two possibilities: #1 - Run the test 20 times. If the player scores at least 15 points, they win. #2 - Player wins if they get 5 points before getting -5 points, or loses if they get -5 points first.

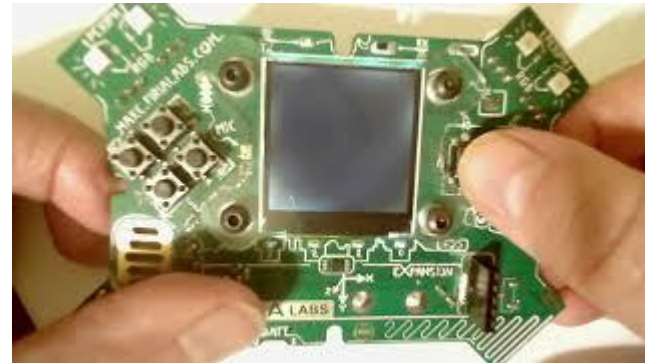


[Video of Remix #4AA](#)



Extra Spicy-4B

Use the L, R and U buttons to determine which indicator to use. For example, L for pixels, R for images and U for colors. As an extra challenge, use D for a random selection.



[Video of Remix #4BB](#)

Step #2

Brainstorm ideas

- Read through remix suggestions from your teacher (previous slides)
- Use the suggestions as presented, or combine some of the options for your own mild, medium, spicy or extra spicy project
- Use your creativity to come up with your own idea for a project
- Decide with your partner what project you will do

DO THIS:

- Fill out the information in the Mission 10 Remix Log for **Step #2**



Step #3

Make a plan

- What variables will you need? What will you use them for?
- What functions will you create for the program?
- Do you need a list? If so, what information will it store?
- What buttons will you program, and what will each button do?


DO THIS:

- Fill out the information in the Mission 10 Remix Log for **Step #3**



Step #4

Code your project

- **IMPORTANT:** In CodeSpace, go to the sandbox 
- Start with a new file and give it a descriptive name (**Remix10**)
- You can leave any program open, including **Reaction Time**, and use it as a guide
- Import your modules
- Create functions as you go, or when you see a need
- Write your code, testing frequently



Step #4

Stop and test frequently!

- Don't try to write all the code at one time
- Think about the steps:
 - Just get one thing to work, then move on
 - Step by step!
- Mistakes happen, so find them early
- Type just a few lines of code and then run the program
- If there is an error, fix it before continuing
- Use the debugger and your other programs for help



Step #5

Documentation!

- Make sure your code is readable by adding blank lines
- Add comments to sections of your code that explain what they do



Step #5

Get feedback

- Show your code to other students.
- What do they think? Have them fill out the feedback form on your Mission 10 Remix Log.
- The Mission Log has space for two people to give feedback. The feedback can come from two peers or one peer and yourself.

Modify your code to make your project even better



And now you have your own remix!

Congratulations!

By completing this remix you have:

- learned more about programming
- practiced the skills and concepts from the missions
- been thinking! And problem solving and much more!



Mission Reflection

- Wow! Great job!
 - Share your project with your friends!
 - Run projects from other students
 - Complete your Mission 10 Remix Log
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- Don't forget to clear your CodeX by running your **Clear** program

