**Project 1: Custom Dance Routine Instructions**

1) Upload code: ***\_4a\_robot\_dance\_CONTROLLER*** as is, don’t modify.

This code is needed in order to synchronize the LED’s, music, and movements, as well as to simplify a few actions.

2) Upload code ***4a\_robot\_dance\_MAIN***

3) Go to the section of the code that has the ***mario\_theme*** variable.

You can replace this song with any other song in the ***4b\_music\_for\_robot\_dance*** program. Erase everything related to the current song and copy the new song from 4b into 4a.

4) Take a look at the section that says ***SET CUSTOM LED COLORS***

The values can be changed, added, or removed. The LED’s are designed to be cycled while the robot is moving.

5) Take a look at the function called ***“def dance\_routine”*** towards the bottom of the program.

This function combines a number or pre-set routines that go into the dance along with a pasue command.

* The pause is optional (I included it to better show when one move ends and the other starts)
* Each function (step in the routine) has two (optional) parameters:
  + ***Duration\_ms*** – how long each move should last
  + ***Speed*** – how fast the move should be performed
    - 1.0 is full speed 0.1 is the slowest possible
  + The ***wiggle*** function is special because it takes a third parameter **cycles**which tells the move how much times to repeat an action.
    - This is only valid when used in a **loop**

6) Take a look at one of the functions in the dace routine, for example **curve\_right\_gentle**. Find that function **def** in the code above.

def curve\_right\_gentle(duration\_ms=600, speed=1.0):  
 s = get\_speed(speed)  
 set\_motors(s, s / 2)  
 run\_move(duration\_ms)

Every function NEEDS only ONE of these

This sets the motor speeds

This runs the motors at the setting above for the length passed into the function

The ***set\_motor*** and ***run\_move()*** commands can be repeated if a move has multiple ‘steps’

7) Take a look at the ***def custom\_move*** function. This is where you can create your own custom move similar to the pre-defined moves.

- Replace ***pass*** with your own ***set\_speed*** command. Make sure ***run\_move*** is called after every set speed.

- You can also change the name of the function from ***custom\_move*** to anything else, just make sure to use that name in the ***dance\_routine*** function if you want that move/function to run.

8) For an added challenge you can:

- Try to make a custom move like **wiggle** that uses a **cycle**

- Coordinate a dance routine with another robot