Default Program 6: Shake that Bot!

Time required: 120 minutes

Please read all the directions carefully before beginning the assignment.

1. Comment your code as shown in the tutorials and other code examples.

2. Follow all directions carefully and accurately.

3. Think of the directions as minimum requirements.

Understanding

Demonstrate understanding of:

libraries, functions

The mBot can appear to be playing a song and moving at the same time. It looks like the mBot is dancing to the music. You will want a catchy song.

Here is a web site to get you started with a known song. https://noobnotes.net

Requirements

Example: https://youtu.be/ZhRuerC0Xgw

- Button A: Remote Control

- Button B: Smart Obstacle Avoidance

- Button C: Smooth Line Following

- Button D: Stay Inside the Line

- Button E: Follow the Line and Avoid an Obstacle

- Button F: Shake that mBot!

- Add this to your Arduino Default Program. Save it as **DefaultProgramDanceParty**

- Use **notes.h** and M**ovement.h**

- Spin in circles, wiggle back and forth, make turns, move forward and backward, etc.

- **Movement function without a parameter:** The music will keep playing while the mBot moves. The mBot will keep moving until you change to another movement or stop.

- **Movement function with a parameter:** The music will stop and wait until the movement is complete.

- **Slow song:** If you use a slow song, it can have more movements changes per number of notes played.

- **Fast song:** If you use a fast song, it would have less movement changes per the number of notes played.

- You do not have to do the whole song, just a part of it.

- The music dance party should last a minimum of 15 seconds.

- Comment your code. Please put the name of the song in the comments.

Assignment Submission

1. All students: Zip up the sketch folder. Attach the zip file to the assignment in Blackboard.

2. The assignment is demonstrated in class.

3. Online students: A link to a YouTube video recording showing your robot going through its motions is placed in the submission area in BlackBoard.

Examples

Be creative: Find your own song and your own path!

- [mBot Imperial March](#)

- [11/19/18 I wish you a merry mBot Christmas from Andrew](#)

- [11/19/18 4 mBots moving and playing Mario!](#)

```
//----------------------------------------------------------------------------
// Music Dance Party function Imperial March
// This is a slow song, it can have more movements changes per number of notes played
// A fast song would need less movement changes per the number of notes played
//----------------------------------------------------------------------------
void musicDanceParty() {
  if (modeFlag == 4) {
    delay(1000);
    forward();
    playNote(noteA4, HN);
    playNote(noteA4, HN);
    left();
    playNote(noteA4, HN);
    playNote(noteF4, EN3);
    playNote(noteC5, EN);
    right();
    playNote(noteA4, HN);
    playNote(noteF4, EN3);
    playNote(noteC5, EN);
    right();
    playNote(noteA4, HN);
    stop();
    modeFlag = 0;           // Stop the dance party, return to remote control
  }
}
```

Revised: 6/19/2021