Default Program 5: Shake that Bot! - Arduino

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.

Requirements

- Button A: Remote Control
- Button B: Look Left Look Right Obstacle Avoidance (Obstacle Course)
- Button C: Smooth Line Following
- Button D: Maze Solving
- Button E: Shake that Bot

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

- Add this to your Arduino Default Program4. Save it as **DefaultProgram5**
- Use **notes.h** and **Movement.h**
- Spin in circles, wiggle back and forth, make turns, move forward and backward, etc.
- **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.

Examples

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

- 11/19/2018 I wish you a merry mBot Christmas from Andrew
- 11/19/2018 4 mBots moving and playing Mario!

Notice the **modeFlag = 0;** at the end of the function. The mBot will go through the dance once, then go to remote control.

```
//-----------------------------------------------------------------------------------------
// 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
  }
}
```

Assignment Submission

- **All students** → Attach finished programs to the assignment in Blackboard.

- **In class assignment submission** → Demonstrate in person.
- **Online submission** → A link to a YouTube video recording showing the assignment placed in the submission area in BlackBoard.