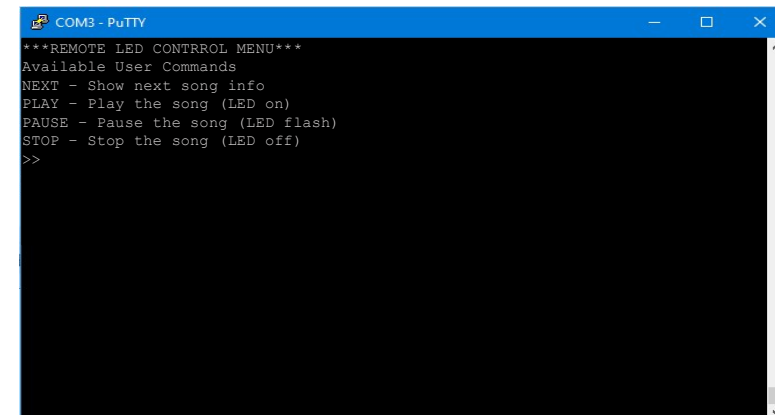# SWEN-340 MIDI Project

MIDI Project Part 2

MIDI Part 2 Project – High Level Requirements

- **Allow two modes of operation: Remote mode and Local Mode**

- **Remote Mode (Same as Part 1): A remote user can control the song UI from Putty /Screen terminal. In this mode, user is not required to flip any switches on the board itself. While in remote mode, the new switch will have no effect.**

- **Local Mode: A super user can override and control LEDs by using the "B1" switch on the board (Blue switch). Remote users will not be able to issue song commands using Putty/Screen terminal until this mode is deactivated by the Super User. While in Local Mode, song commands will be controlled via a push button switch (S1).**

Final Project – Detailed Design/Requirements

- **Allow two modes of operation: Remote mode and Local Mode**

- **Add Remote mode and Local mode flags to manage switch back-and-forth between the modes of operation**

- **Default start shall be Remote Mode**

- **UI shall notify a remote user of current mode of operation and any changes occur over time**

- **UI shall prompt the same message as in UART LED Project at the start of the operation followed by " *** REMOTE MODE ACTIVE*** "**

- **UI shall prompt " *** MANUAL OVERRIDE MODE ACTIVE*** " when the Super User presses "B1" switch to activate the Override mode**

- **UI shall prompt " *** REMOTE MODE ACTIVE*** " again once the Super User deactivates the Override mode by pressing "B1" switch again**

Final Project – Detailed Design/Requirements

- **Operation in Remote Mode**
  - A Remote user shall be able to type following commands:
    - **HELP**
      - Prompts messages on Slide # 3 (which commands are available)
    - **NEXT**
      - Displays song info (see MIDI documentation):
      - Song title (FF 03)
      - Copyright (FF 02)
      - Tempo (FF 51) – this can be displayed as a 6-digit number
    - **PLAY**
      - Turn LED on
      - Does nothing if LED already on
    - **PAUSE**
      - Start LED flashing
      - This does nothing if LED is already flashing.
    - **STOP**
      - Turn off LED - regardless of its current state
      - Does nothing if LED already off

Final Project – Detailed Design/Requirements

- **Operation in Local Mode**

    - Assume that a super user exists locally who can operate and control boards physically.

    - A Super user will enable the Local Mode by pushing "B1" User switch on the Nucleo STM32L476RG Board.

    - Once B1 Switch is pressed the system enter Local Mode and disables Remote Mode.

    - While in Local Mode:

        > Pressing the switch (S1) once, plays/pauses a song. This is a toggle.

        > Pressing the switch (S1) twice within one second, moves to the next song.

        > Pressing and holding switch (S1) for at least one second stops playback.

    - When B1 Switch is pressed again (to turn off Local mode), all LEDs will turn off and the R1 and G1 Switches should no longer function.

- **S1 SWITCH**

    - Refer to images and circuit diagram provided for SWTICH circuits

Project Demonstration & Grading

- **See Grading sheet for details**