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Video: <https://youtu.be/haNflUexMRk>

Report: Music Composer Implementation

For my implementation, the user can select between 8 predefined tones and 4 lengths (0.5, 1, 1.5 and 2s) for those tones. After the selection of a given tone, the user will be able to select a length associated with the tone.

The Music composer will enter 3 different states (State 1: Selection of the tone, State 2: Selection of the length and State 3: Playing all the tones entered by the user). SERVOS positions represent the tones available, LEDs represent the lengths available and the user button is used to transition between states.

The system will start programming in the selection tone mode (State 1), to cycle through the tones the user can **single press**, and to choose a given tone the user can **double press**. At this point the system will enter the selection length mode (State 2). To cycle through the available lengths the user can **single press** and to select a length the user can **double press**. Once a tone and a length are selected, the system will go back to the selection tone mode (State 1) and the user can enter multiple tones.

Once the user has selected the desired number of tones and lengths. The user can **triple press** to play automatically all the tones. After playing, all Leds will light on to show the completion of the program. If the user wants to enter a new set of tones, please press the **reset button** first.

Notes:

- In my implementation the system can only play 8 sets of tones (including a length for each tone) at a time, once the user tries to enter more than 8, all leds will light on to show that the user has reached the maximum and needs to Triple press to play the already entered tones.
- To increase the number of set of tones, “#define TONE_MAX 8” could be changed to 10 or another number, to allow more combinations of tones to be played by the user.
- LEDS: (Orange - 0.5s; Red - 1s; Blue - 1.5s and Green - 2 s)
- I added printing statements that can be helpful in debug mode to show what the system is currently performing.