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EC450

The code is mostly built upon the example given to us. The design uses two arrays for each song. One array to hold the frequency of the notes, and another array to hold the duration of the notes. The arrays are const variables so they can store more notes. The frequency was based off piano sheet music converted using online charts that corresponded notes to frequency. The duration is the period, which can be calculated with the formula 1/((2\*freq)/1000000).

The pins were defined to correspond to buttons and do certain commands, such as initialization, fast forward, slow, play, and pause. Play\_speed controls the rate at which the song is being played. Thus it allows the song to be played at a faster or slower rate.

There are counters for the arrays and I used watchdog timer to countdown for each note. The WDT also resets the array counter at the end of the song and it toggles the LED which show the state of the song.

Songs I used were Pokemon and Joy to the World