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Subject: Social Distancing Embed. Syst. Progress Report

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Purpose
The purpose of our design is to enforce social distancing. This is done by using a display and external timer that tells a person whether or not they are six feet away from the next person while utilizing.

Summary
Through the utilization of audio and ultrasonic transducers, the embedded system is capable of detecting when someone walks by. Immediately afterwards calculate the time one person should wait before passing to maintain social distancing. The audio transducer is used to activate the system; when no sound is detected the system is functionally off. A seven-segment display is used as a countdown timer, calibrated against the walking speeds of multiple test subjects. When the timer strikes zero, a person can safely pass the system.

Discussion
Thus far, we have made a preliminary commit to the Github with the frame of how the rest of the assignment will be structured. Two LEDs were assigned as digital outputs, red and green; these will be used as "stop" and "go" respectively to indicate when someone can begin walking. Additionally, a Watchdog was initialized, but hasn't been used yet. `reset()` was assigned as a prototype for the ISR that will be used to reset the Watchdog.

Inside the `main()` function, the majority of the work done has been assigning ports. The `RCC AHB2ENR` clock was enabled for `GPIOB` and `GPIOC`, with Port B being used for inputs and Port C being used for outputs. The eighth and ninth bits of `GPIOB` were set to 0s to declare that as an input. Pin 8 will be used for the audio transducer and pin nine will be used for the ultrasonic transducer. Similarly, pins eight plus nine and ten plus eleven in `GPIOC` were set as 01 to assign them as outputs.

Lastly, a preliminary framer for the while loop was set up. Thus far, the only progress that has been made has been the following lines of code. This code will eventually serve as a means of checking whether the audio transducer (`PB8`) is currently sending a high or low signal.

Recommendations
There are multiple steps that must be taken next. The while loop will be expanded to use the information of whether or not the audio transducer is currently sending 0 or 1. Additionally, the clock for the seven segment display will be programmed and helper functions will be designed for the LEDs to turn them on and off as necessary.