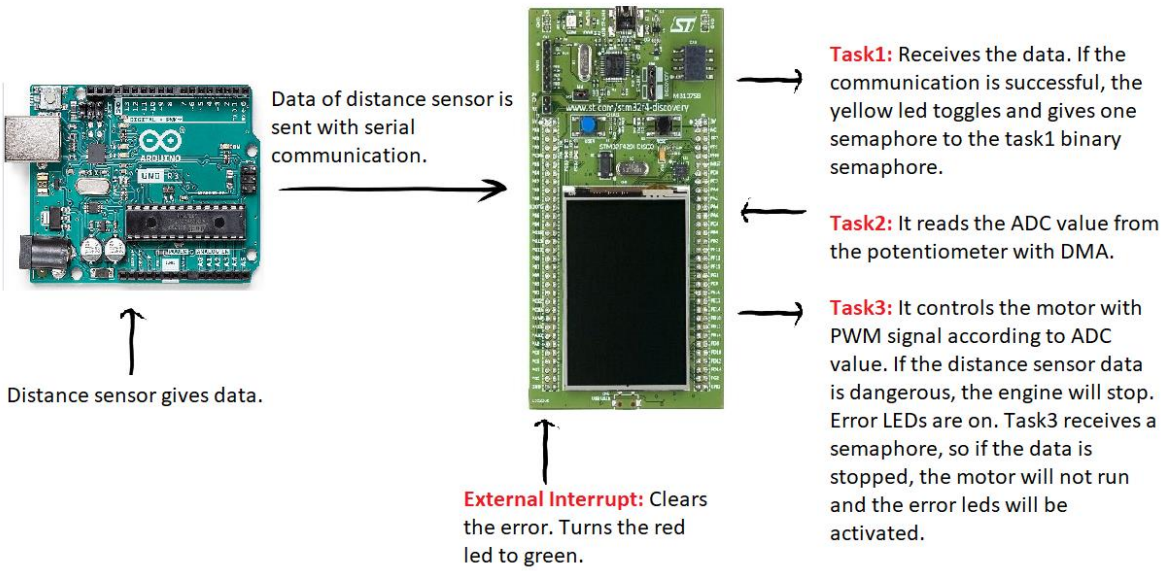
Depending Distance Motor Control - FreeRTOS Project

Hardware Components: Stm32F4279I, Arduino, Distance Sensor, Motor driver board, DC motor Potentiometer, Power Supply, etc.

Used Techonologies: FreeRTOS(Binary Semaphore), Serial Communication PWM, DMA, ADC, External Interrupt.

Task Information: This FreeRTOS project has 3 tasks. In the first task program, data is read from Arduino and if this serial communication is successful, the LED on the STM32 will turn on. In its second task, it reads the ADC value with DMA from the potentiometer. With this value, the motor is controlled by PWM signals. In the third task, the motor is controlled by the ADC value. There the distance status is checked. If the engine stalls depending on the conditions, the error led turns red. Using the external interrupt the user can clear this error so the led will be green.

Semaphore Information: Project has binary semaphore. If serial commucation is succesfull, data reader task give semaphore. Then, motor controler task takes this semaphore. So, If data does not come succesfully, motor is stopped, and led is red.



To reach project video :
https://drive.google.com/file/d/1TXNM7e0ILpN6u3ocMd0YIiCo_HlUO5EW/view?usp=sharing