

Embedded Systems Development

Task 7.3D Raspberry Pi PWM

This task is aimed to help you work with and setup PWM on Raspberry Pi.

Hardware Required

Raspberry Pi, A device/sensor capable of PWM application (e.g. Buzzer, Vibration motor, or even an LED), Ultrasonic sensor SR04

Software Required

Python IDE (or other IDEs if using a different programming language)

Pre-requisites: You must do the following before this task

Task 4.1P

Task Objective

The objective of this task is to work with PWM on a raspberry pi and control functionality of a device for example a vibrating motor or an LED. You are required to build an embedded device that detects if an object is approaching, and notify using vibration motor, buzzer or the brightness of an LED. The device will use ultrasonic sensors to detect if a solid object is approaching and alert the user. As the object gets closer to the device, the sound gets louder or higher pitch, or if using an LED, the LED would become brighter, or if using a Vibrator motor, the vibration will be higher.

Task Submission Details

Q1: Submit a video that demonstrates the system working. Your video should include a brief description of how you have programmed the device, and how the devices are connected together (pins, and communication protocols used if any).

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Q2: Create a repository named SIT210_Task7.3D_RPiPWM on Github. Upload your code to the repository. Include the link to your repository here.

Q3: Briefly (around 200 words) describe how you would improve the system.

Remember, anytime you submit a task to OnTrack, it is a good practice to check the status of any existing tasks, and the future tasks you are expected to complete. If you have got feedback on previous tasks, you may need to fix and resubmit some of your work. You want to check out why, so that you can learn from this and make it faster and easier to accomplish later work to the required standard.