For this assignment, I considered the possibility of implementing a hypothetical critical-safety piece of software for vehicle usage and potentially autonomous vehicles as well. The purpose of this software is to ensure safety for the driver when needing to make an early commute. In the sheer cold, the car must be warmed up to an appropriate temperature before it can run safely. Additionally, because it is still fairly dark outside, it makes it difficult to analyze your surroundings which can cause an accident if the driver didn't detect any pedestrians or vehicles. As such, I designed a program using the raspberry pi that will provide those safety-critical features for early commutes with these four use-cases.

1. The temperature DHT11 sensor will be used to detect the temperature within the car. This will read the temperature such that when the temperature rises to an approrpriate level, it will alert the driver and let them know that the vehicle can now be driven safely.

2. The driver is alerted through the LED lights found on grovepi. The red LED will remain active when the car is still under the threshold. Once the car's temperature reaches the appropriate level, the red LED will deactivate and the green LED will turn on which signals the driver that the car can be driven. A rule was also implemented so that the driver would receive an email notification once the car is ready.

3. The device will also take advantage of both the light and sound sensors on grovepi. The light sensor will detect any lights from nearby vehicles or headlights from pedestrians and will alert the driver through the buzzer to slow down and proceed cautiously. A rule was also implemented so that an email notification would be sent when the situation is dangerous. This is also conveyed with a telemetry added to the device template.

4. The 3rd use-case applies to this use-case except it pertains to the sound sensor.