In this lab work, your task is to build a simple parking assistant. You are required to create a circuit with an Arduino board, 2x16 LCD Display, Buzzer and Ultrasonic Sensor. When you correctly assembled the circuit, you will need to write a source code to implement parking assistant system using Arduino Software (IDE).

Experiment

You will design a circuit of buzzer and ultrasonic sensor. You will write an Arduino program to monitor distance and indicate the distance by a buzzer. **In the first row of LCD Display**, distance data (in metric units), which is acquired from ultrasonic sensor will be displayed. **In the second row of LCD Display**, one of the following texts will be displayed: "Too Far", "Far", "Close", "Too Close", "Crashed".

Buzzing interval of the buzzer component will be **directly proportional to distance value**. If distance is larger, buzzer will produce tone with **longer silence intervals**, if distance is smaller, buzzer will buzz with **shorter silence intervals**. Moreover for each interval **different tones** should be used.

Also when distance is 5 cm., buzzer will play a melody that resembles **"Game Over" melodies** of old computer games.

Intervals are:

Distance > 1 m → "Too Far"

Distance ϵ [51 cm, 100 cm] → "Far"

Distance ϵ [21 cm, 50 cm] → "Close"

Distance ϵ [5 cm, 20cm] → "Too Close"

Distance <5 cm → "Crashed"

Your program should also display relevant description on the serial monitor window in **an interval of 2 seconds**. The text format should be as follow:

```
Date: 17.06.2021 - Hour: 19:17:12 - Distance: 30 cm.
It is close.
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Date: 17.06.2021 - Hour: 19:17:14 - Distance: 15 cm.
It is too close.
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Date: 17.06.2021 - Hour: 19:17:16 - Distance: 2 cm.
It is crashed.
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```