

Zzafety Driving

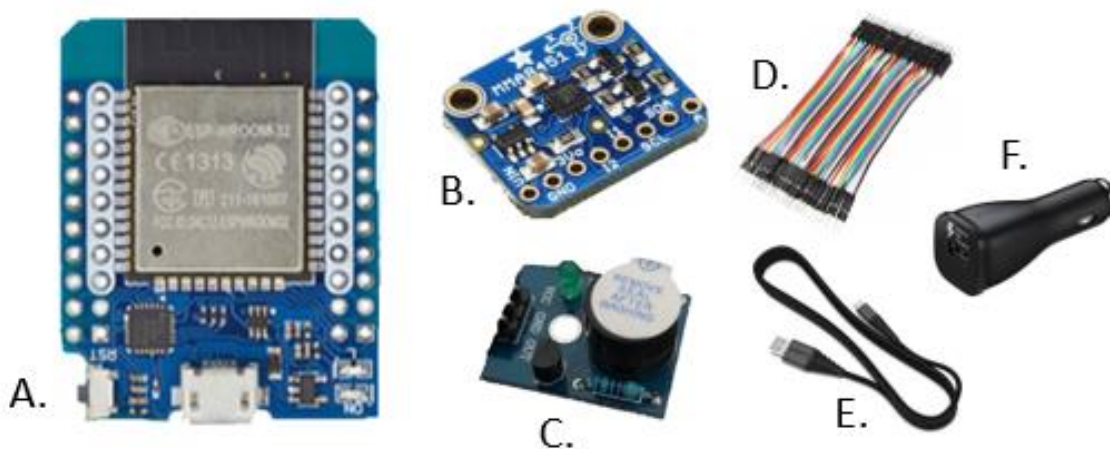


Nowadays, the number of road accidents related to drowsiness is constantly increasing. At first sight, this seems harmless, but on the road, the truth is different: it can reach anyone at any time of the day. Most of the time, drivers who are victims of this drowsiness do not realize their condition, which very often leads to accidents involving other drivers. To overcome this problem, of course, it would be necessary to sleep more or

to use methods to fight fatigue while driving. But this is not always possible, and it only postpones the problem until later.

Zzafety Driving (Annex 1) is a connected gadget consisting of a microcontroller, an accelerometer, and a buzzer to analyze the inclination of a driver's head when drowsiness occurs and to warn the driver with a sound effect. In association with a mobile application, the application based on different profiles of people on their state of fatigue makes it possible to modify the sensitivity of the object according to the physical/psychological condition of the driver.

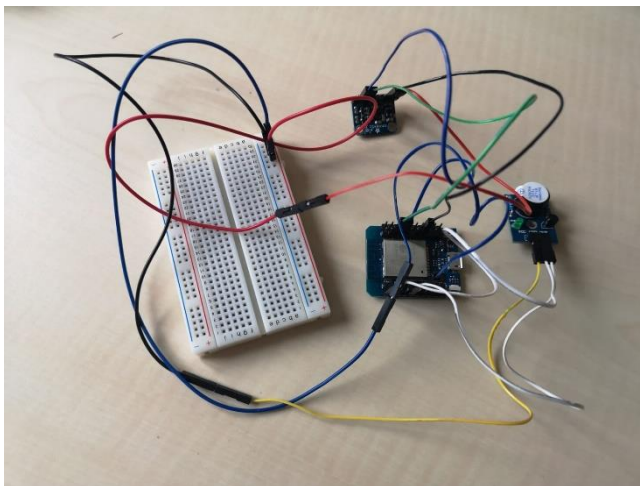
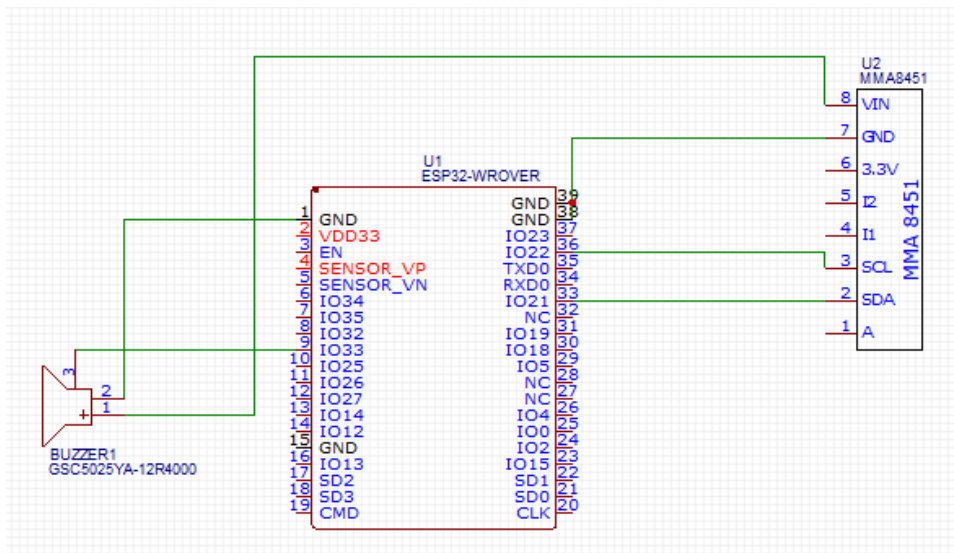
Step 1: What do you need?



- A. Microcontroller: Wemos-D1-Mini-ESP8266 (ESP-32)
- B. Accelerometer: MMA8451

- C. Buzzer for Arduino
- D. 7 hookup wires
- E. Micro USB (to power the components)
- F. Car Adapter Plug (to power the components in a car)

Step 2: The Arduino Part?

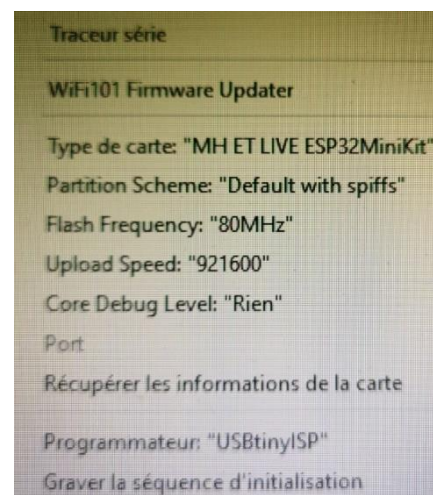


Firstly, you have to connect the components and wires as shown in the two pictures.

The microcontroller Wemos-D1-Mini-ESP8266 (ESP-32) can be used with the IDE Arduino. So, open it on your computer or download it.

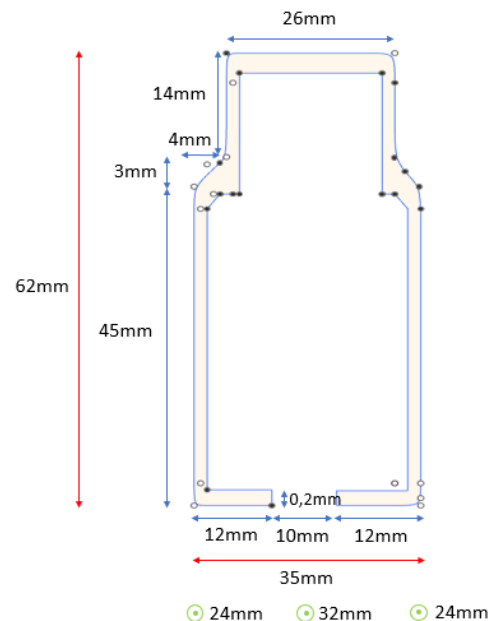
Now, you have to copy the sketch below to your IDE Arduino. Look carefully at the photo showing which microcontroller to choose on the IDE. You have to download the ESP32 libraries to find the correct microcontroller.

Tutorial: <https://randomnerdtutorials.com/installing-the-es...>



Also, make sure you choose the right port for the connection between the computer and the microcontroller.

Step 3: Construction of the Protective Shell of the Electrical Circuit + Extensions



I show you here an example of a protective shell (Annex 3), but you can design it according to your preferences!

This object can be put in the form of an earpiece or as a clip-on extension to a branch of glasses (get the sketches below : Annexes 4 and 5). On these files, it would be preferable to add clip-on parts between the protective shell and the extensions (by sliding them, for example).

Step 4: The Mobile Application

Everything you need is here:

<https://github.com/tinou99/Zzafety-Driving/tree/ma...>

Annexes:

Zzafety Driving.mp4

Annex 1 – Promotional video

Zzafety_Driving.ino

Annex 2 – Arduino Code

Zzafety_Driving.stl

Annex 3 – 3D modeling of the protective shell

extension_lunettes.stl

Annex 4 – 3D modeling of the “earpiece” extension

extension_oreillette.stl

Annex 5 – 3D modeling of the “glasses” extension