

BSP-6-Drone Control using and Inclinometer paired with an ESP32

In the previous BSP, I worked on TEMO a module that allows the DJI Tello drone to interact with humans through their facial expressions. The current version of TEMO allows users to control the drone using the keyboard and to interact with the drone using facial expressions.

The idea of this project is to add a new interaction technique using an ESP-32 and a MPU-9250 inclinometer board to control the drone in three axis. The goal is to design a device that can be attached to the palm of the hand, to read the inclination of the hand in the three axis, which sends the command to the drone to perform the movement based on the inclination. For instance, the inclinometer reads a positive value in the x axis, the drone moves forward, if it reads a negative value the drone moves backwards. This allows for a new interaction technique with TEMO using hand movements without computer vision. The second part of the project consists in refining the facial expression interaction, by adding a frame buffer in order to have a more accurate emotion detection.