

# ALCOHOL SENSING FOR A SECURITY SYSTEM

Prepared by: Lim Wai Hong

## ABSTRACT

---

In the present era, alcohol beverage has become an important element in social meetings among the working adults and even university students. This develops a 'drinking' culture and it gives a negative impact on the society. Society is misusing alcohols causing themselves to behave inappropriately in public.

The project 'Alcohol Sensing For A Security System' was designed and implemented in public places to oppose these alcohol intoxicated people from entering important places like college libraries, conference halls, hospitals, workplace and etc. the project aims were to sense the presence of alcohol in user's breath and the door unlocks only when BAC is below the definitive limit of 0.04% and remains locked when BAC is at 0.04% or above. The system was able to display user's BAC result and had an additional feature of checking user ID numbers which enhances the security system of the project.

The method of sensing alcohol presence was achieved using the available 10-bit ADC module in the PIC16F877A microcontroller which converts the analogue voltage into digital value. The sensor calibration was complete using various ethanol solutions to obtain the individual digital vales before converting it into BAC result. If BAC result is below 0.04%, microcontroller activates the solenoid driver circuit and unlocks the door. The door was attached with a soft spring which pushes back the door back to its original location and presses the switch. The connected switch informs the microcontroller that the door has been closed thus, relocking the door. The door is designed like a turnstile door which allows one user to pass at a time. MikroC pro is the C language software responsible for integrating the inputs and outputs of the project.

The prototype model of the project was successfully constructed and managed to achieve the aims and objectives of the project. This project is important for students as it improves the practical knowledge and skills on the implementation of hardware and software in the design.

**Keywords: BAC, ID, ADC, PIC16F877A microcontroller and C language**