The main objective of this project is to design and build a traffic control system for blind people, using Arduino. The system simply assists people with visual impairments in determining when it is safe to cross the street. That is, the system will continuously beep the buzzer slowly just to attract blind people towards the IR sensor. If the IR sensor detects people, the red light of the traffic light will go on and the buzzer will beep faster to let the blind person know that he can cross the road now. After the person’s successful crossing, the green light of the traffic light will turn on after turning off the red light.

This project is based on Arduino Uno - an open-source electronics platform based on easy-to-use hardware and software. Arduino board senses the environment by receiving inputs from many sensors, and affects its surroundings by controlling various actuators. The Arduino board is programmed by writing code in the Arduino programming language and by using the Arduino Integrated Development Environment. Unlike most other programmable circuit boards, the Arduino does not need a separate piece of hardware (called a programmer) in order to load new code onto the board - you can simply use a USB cable.

The main components used in this project are:

* **Arduino Uno Microcontroller board** based on the Microchip ATmega328P microcontroller is used in this project. This board also consists of other components such as crystal oscillator, serial communication, voltage regulator, etc. to support the microcontroller. Arduino Uno has 14 digital input/output pins (out of which 6 can be used as PWM outputs), 6 analog input pins, a USB connection, a Power barrel jack, an ICSP header and a reset button.
* **Light-Emitting Diode(s) (LED)** is a semiconductor device that emits light when an electric current is passed through it. Light is produced when the particles that carry the current (known as electrons and holes) combine together within the semiconductor material. Here we use both ‘RED’, ‘GREEN’ and ‘YELLOW’ LEDs.
* **IR sensor** is an electronic device, that emits the light in order to sense some object of the surroundings. An IR sensor can measure the presence of an object as well as detects the motion.