

SMART ZEBRA CROSSING SYSTEM AND LI-FI SYSTEM

Abstract:

In the field of technical research, the Internet of Things (IoT) has become an interesting topic. The device is interconnected over the internet. We usually think of IoT in terms of independently owned cars and smart homes, but in extreme practical matters one of the best applications of IoT technology is increasing rapidly from a technical point of view, in particular with the smart crossing system. A lot of people cross the street every day. There are a lot of vehicles on the lane. Troubles happen, even deaths. Many vehicles are on the road. The laws of road crossing are not very strict, in which case it is very important to have a pedestrian-safer IoT-based smart crossing system with object tracking. Often people are facing an accident, in particular school children have trouble crossing the road, old people face the same problem. A cost-effective solution to this issue is the key contribution of this project using a simple framework based on Arduino UNO R3. The device is fully autonomous and can calculate the planned parameters of a pedestrianized IoT-based, smart crossing platform with object tracking in an efficient way.

Li-Fi stands for Light-Fidelity. The technology is very new and was proposed by the German physicist Harald Haas in 2011. Li-Fi provides transmission of data through illumination by sending data through an LED light bulb that varies in intensity faster than the human eye can follow. In this paper, the authors will discuss the technology in detail and also how Wi-Fi can be replaced by Li-Fi. Wi-Fi is useful for general wireless coverage within buildings while Li-Fi is ideal for high density wireless data coverage in confined areas where there are no obstacles. Li-Fi is a wireless optical networking technology that uses light emitting diodes(LEDs) for transmission of data.

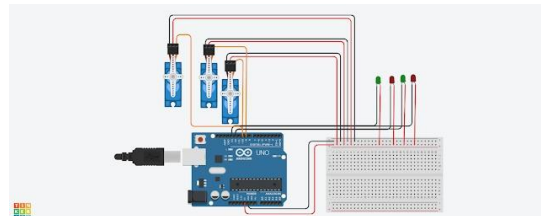
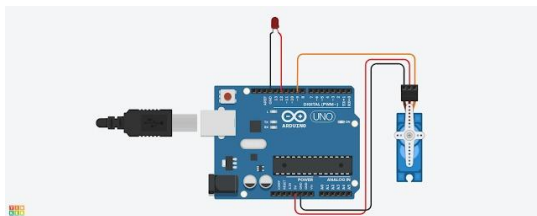
Objectives:

1. The main objective of this initiative is to increase traffic safety for pedestrians in busy areas. Some light panels installed next to pedestrian crossings, make them more visible to drivers and let drivers know that there are people crossing or who intend to cross them.
2. The prime objective of the project is to create an application that transmits data be it text, audio or video using Li-Fi technology for coping with the limited bandwidth problem we face in RF (Radio frequency) signals. For better, efficient, secure and a faster connection Li-Fi is used.

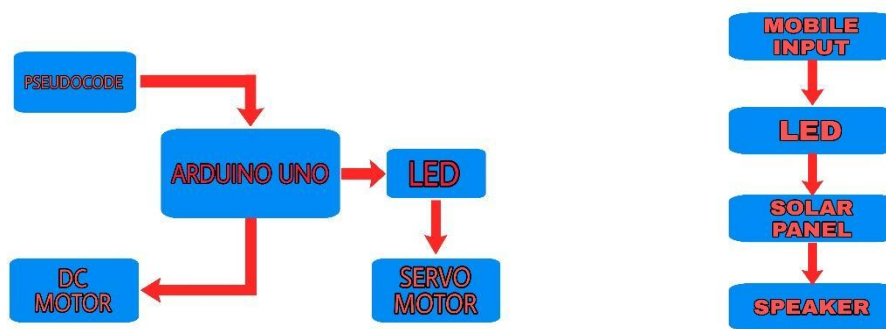
Introductions:

First, traffic control systems all over the world are becoming more and more technology oriented and the development of such technology has reached the point of automation. That being said, the automation process is only limited to the already developed countries or to some developing countries. Although technology based, many developing and underdeveloped countries still rely a tremendous amount on the physical and tactical services of the traffic management officials. It goes without saying that the task of orienting and managing traffic can be extremely bleak and hard for a human being to focus on 24/7 and should be managed by automatic systems to get the best output. It is also necessary to mention that the traffic systems of the latter mentioned countries fail to commit people to the laws and customs of traffic, especially road crossing. Other than the fact that people are unwilling to abide by the rules, it should also be noticed that crossing roads at random is risky and may result in untimely and accidental deaths.

Methodology :

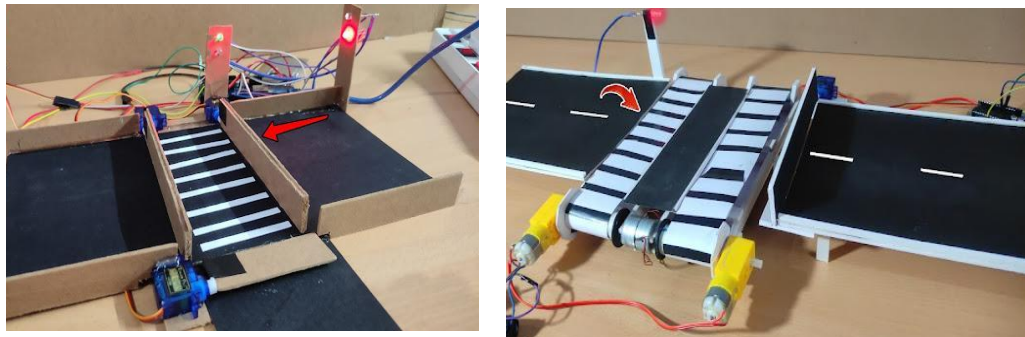


Block Diagrams :



Result:

1. After getting the instruction, the Arduino gives an output at LED to initiate the Servo Motor and thus Vehicles are stopped. After that the D.C. Motors starts working.



2. Getting the input from source, the output of LED goes to Solar Cell and after receiving the data, it will be transmitted to the speaker.



Conclusion:

By this Work our initiative is to increase traffic safety for pedestrians in busy areas. Some light panels are installed to make them more visible to drivers and let drivers know that there are people crossing. We tried to create an application that transmits data (text, audio or video) using Li-Fi technology to overcome the limited bandwidth problem we face in RF signals.