LED VEST INDICATOR

GUIDED BY - ARCHANA K G
GROUP 2

ANITTA S – ICAUSEL002

ANAS Y – ICAUSEL007

K P DEVANANDAN – ICAUSEL015

DIVYA C G – ICAUSEL021

AGENDA

- INTRODUCTION
- LITERATURE REVIEW
- BLOCK DIAGRAM
- CIRCUIT DIAGRAM
- WORKING
- RESULT
- ADVANTAGES AND DISADVANTAGES
- APPLICATIONSFUTURE SCOPE
- CONCLUSION
- REFERENCES

INTRODUCTION

- With the rapid growth of cycle accidents, it has become important keep ourselves cautious to avoid misadventures
- By the project LED VEST INDICATOR, we are not mean to end the number accidents but to control or reduce the rate
- A LED bicycle vest indicator is a safety device that can be worn by cyclists to improve their visibility on the road and indicate their intended direction to other road users.
- A GPS and GSM module system can be used to enhance the safety and security of individuals, particularly in the case of potential kidnappings

RELEVANCE OF THE PROJECT

With the rapid growth of cycle accidents, it has become important keep ourselves cautious to avoid misadventures. By the project LED VEST INDICATOR, we are not mean to end the number accidents but to control or reduce the rate. In the day-to-day life, the number of vehicles is increasing day by day. As well as the rate of accidents are increasing. A LED bicycle vest indicator is a safety device that can be worn by cyclists to improve their visibility on the road and indicate their intended direction to other road users. The vest is equipped with LED lights that are positioned on the back and front of the vest, and can be controlled by the cyclist to indicate when they are turning left or right. A GPS and GSM module system can be used to enhance the safety and security of individuals, particularly in the case of potential kidnappings. These systems consist of two separate modules: a GPS module, which can track the location of the individual in real-time, and a GSM module, which can transmit this location information over cellular networks. In addition to providing location tracking, the GSM module can also be used to establish two-way communication between the individual and rescue teams.

LITERATURE REVIEW

PAPER NO	CONCEPTS	TECHNOLOGY	DRAWBACK
1	Implementation of wearable sensor vest for the safety and well-being of children	vest built around Arduino and flora platforms for automatically gather and provide information's	They can be bulky and uncomfortable.
2	Smart motorcycle vest using Arduino and vibration sensor module	Airbag inflation mechanism include vibration sensing module sense the shockwave received by the body.	vest is for one time usage
3	Automatic turning on/off bike indicator using offline gps navigation system	Led display to display the directions turn and distance about to turn	if the turn is incomplete doesn't display correctly on the screen
4	Bicycle Automatic turn signal	Wirelessly communicates with signal display board in rear of bike	not last longer
5	Evaluation of accelerometric and cycling cadence data for motion monitoring	measurement technique includes use of wearable sensors, smartphones, smart watch-based bio metrics, and computational intelligent method	no proper signal processing
6	An intervention to reduce Bicycle injuries among middle school students in rural China international	study population and main rationale behind school choice	short term impact

BLOCK DIAGRAM

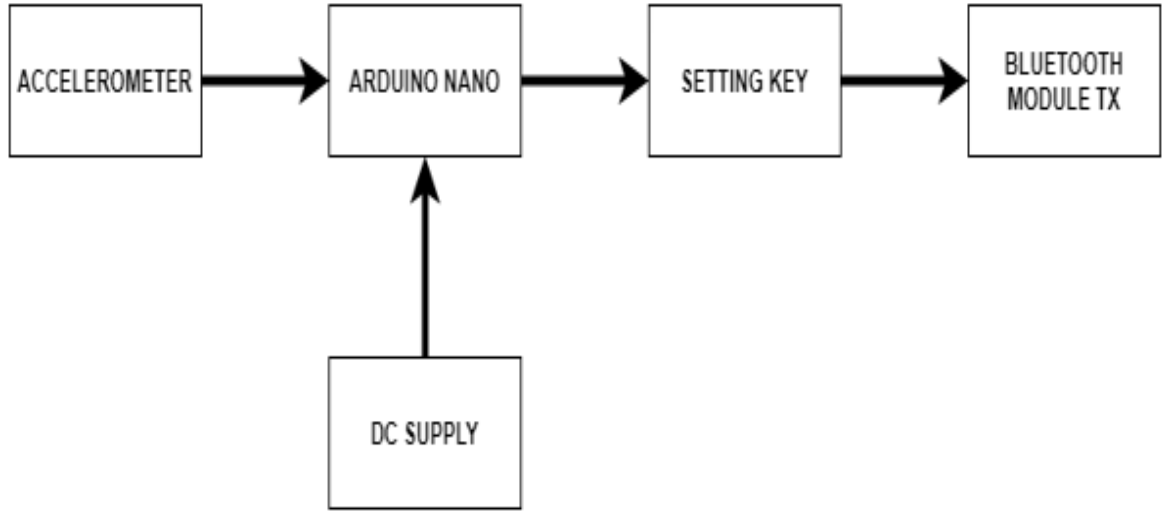


Figure 3.1.1: Block Diagram of transmitter System

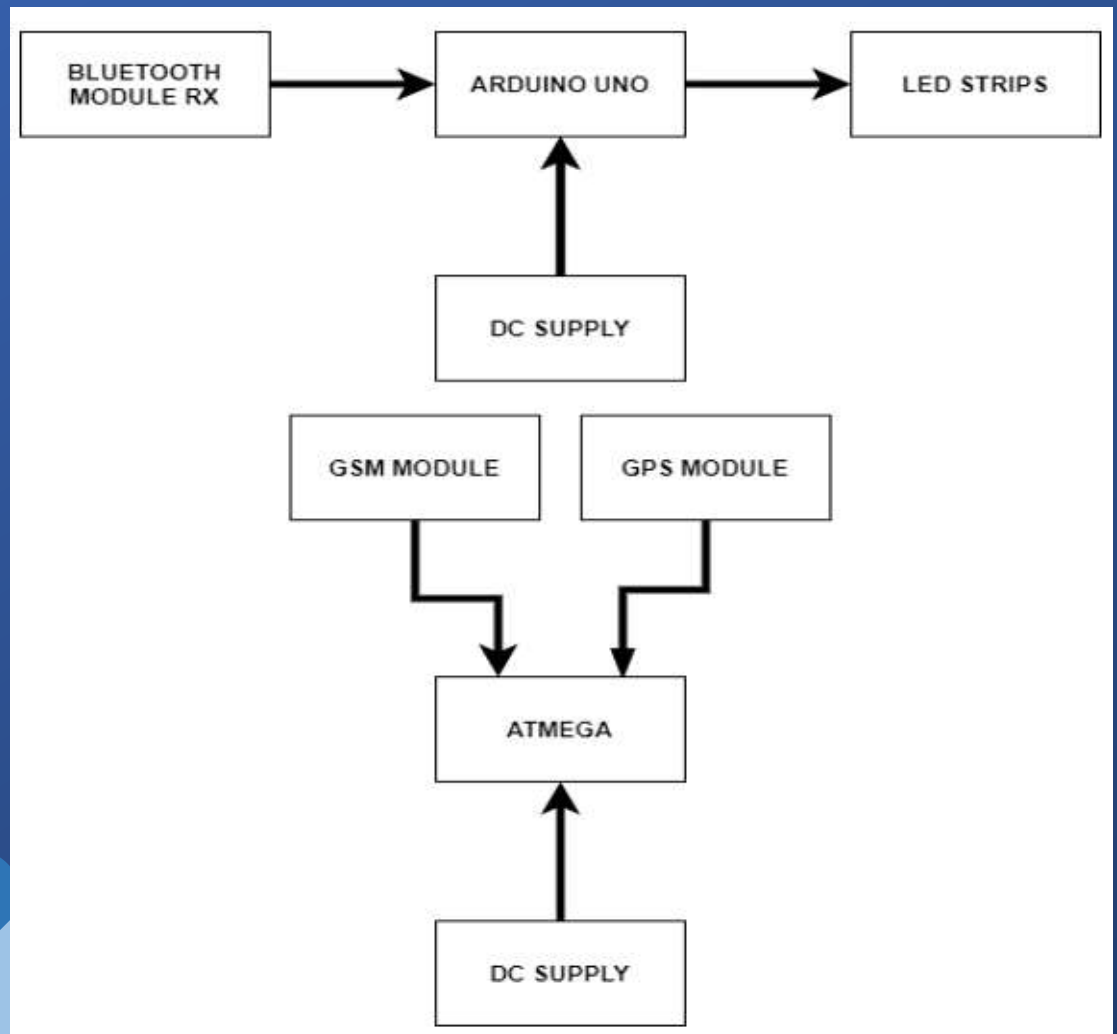


Figure 3.1.2: Block Diagram of Receiver System

CIRCUIT DIAGRAM

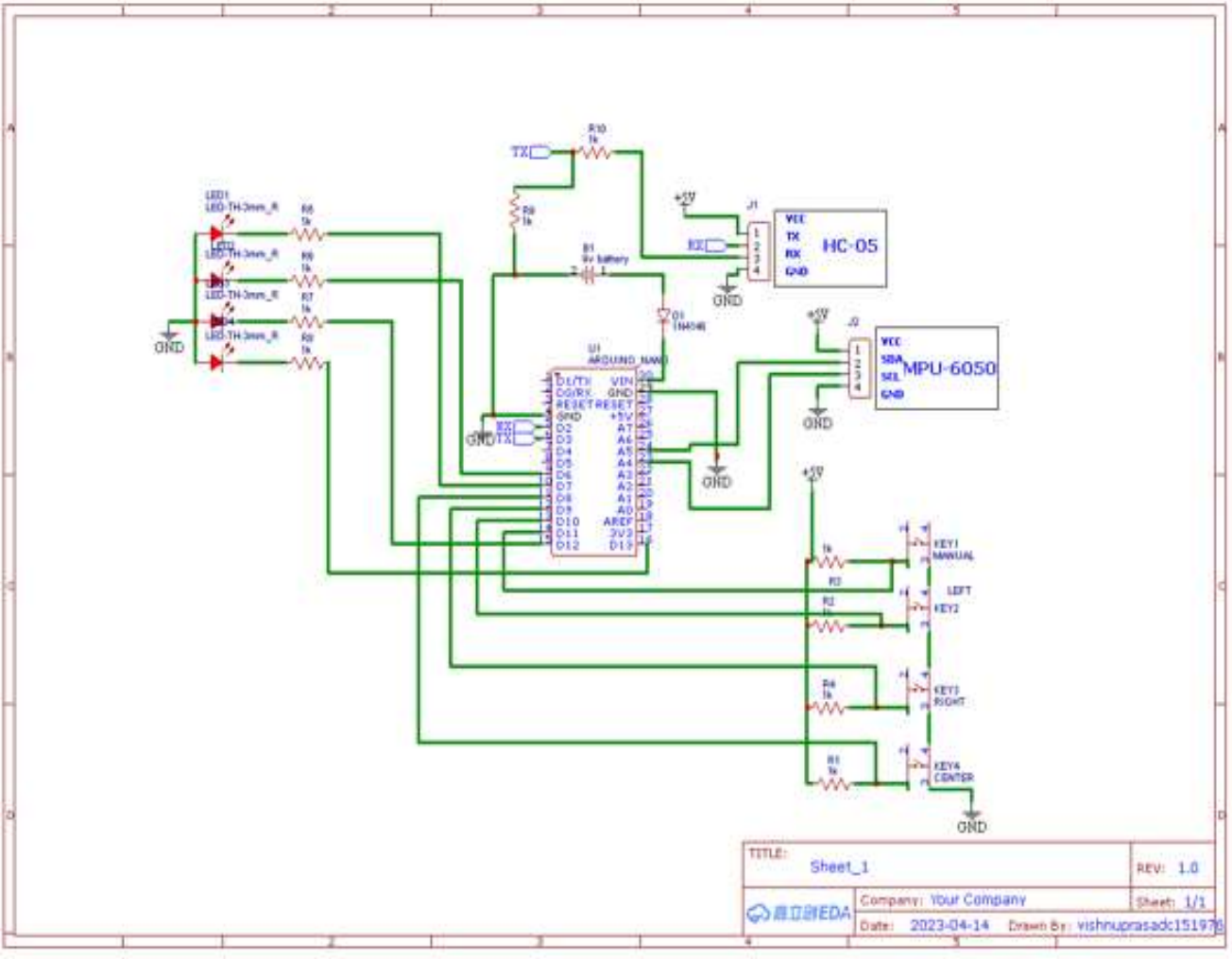


Figure 3.2.1: Circuit Diagram of Transmitter System

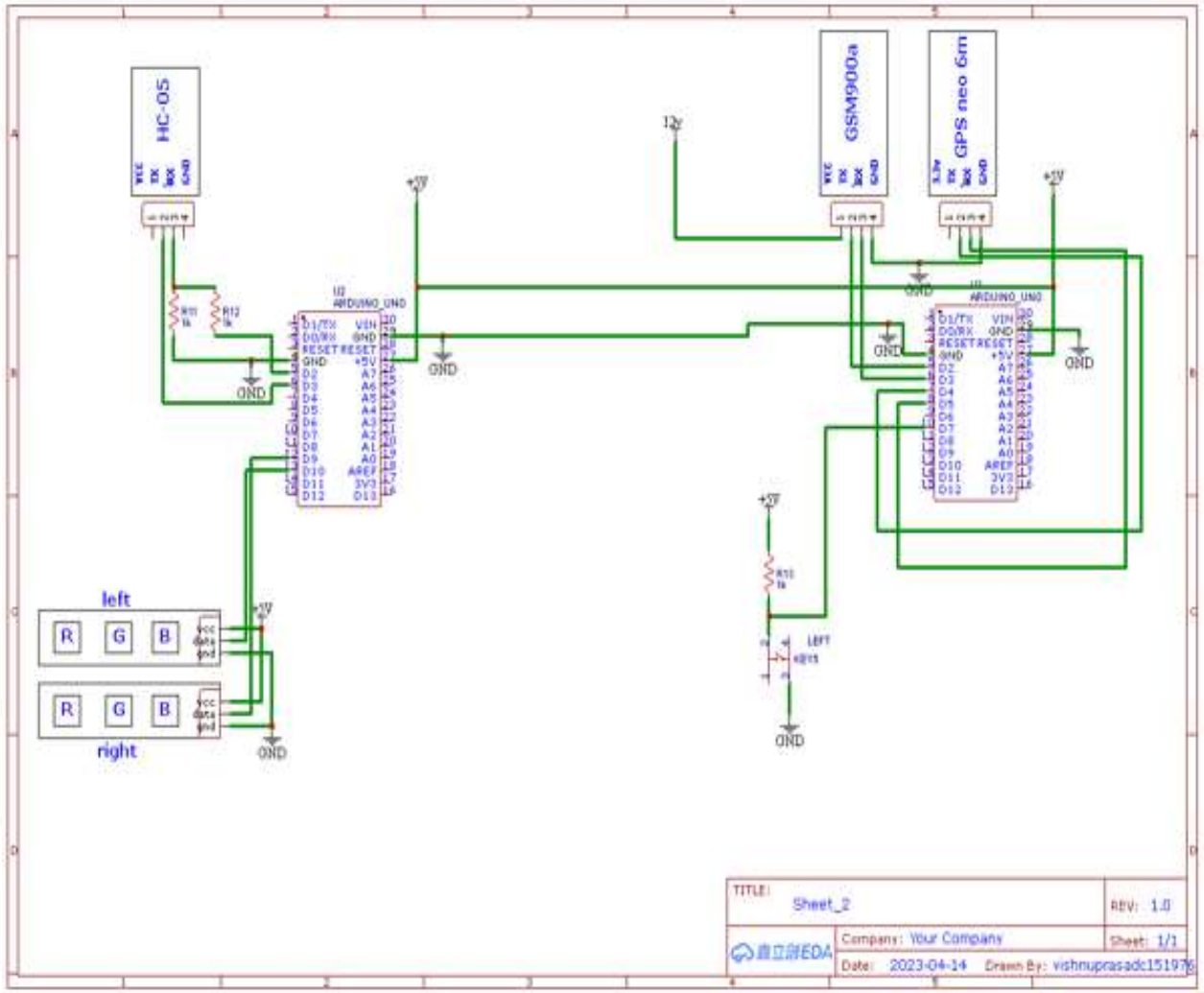


Figure 3.2.2: Circuit Diagram of Receiver System

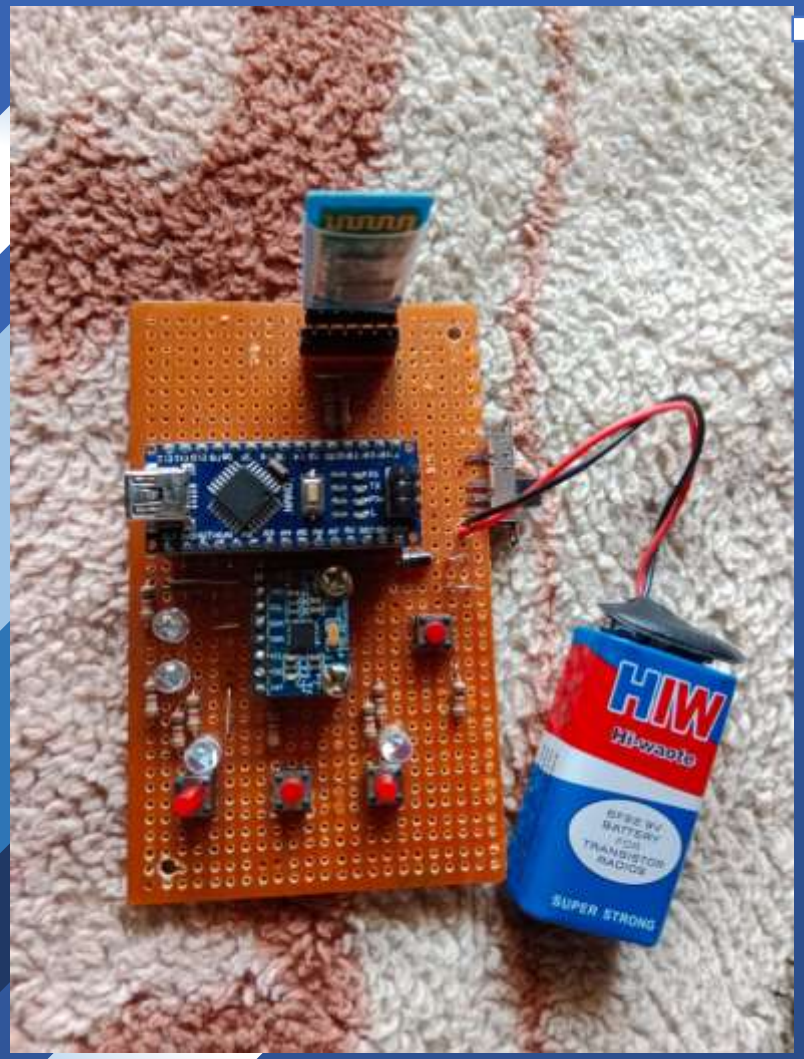
WORKING

- Light Vest Indicator works on the principle of accelometer.
- Change in the angle is the data and this data transfer to the Blutooth module at the receiver end.
- Bluetooth module at the receiver end decode the code and transmitt the data to LED strips.
- According to the received data, LED strips turns ON.
- GPS and GSM moduls are included. Push button connected in the 10 pin of the Reciever Arduino share the Location via SMS to the specified mobile number.

Components are:-

- *DC Supply*
- *Arduino Uno*
- *Arduino Nano*
- *Accelerometer*
- *Bluetooth Module*
- *GPS Module*
- *GSM Module*

WORKING

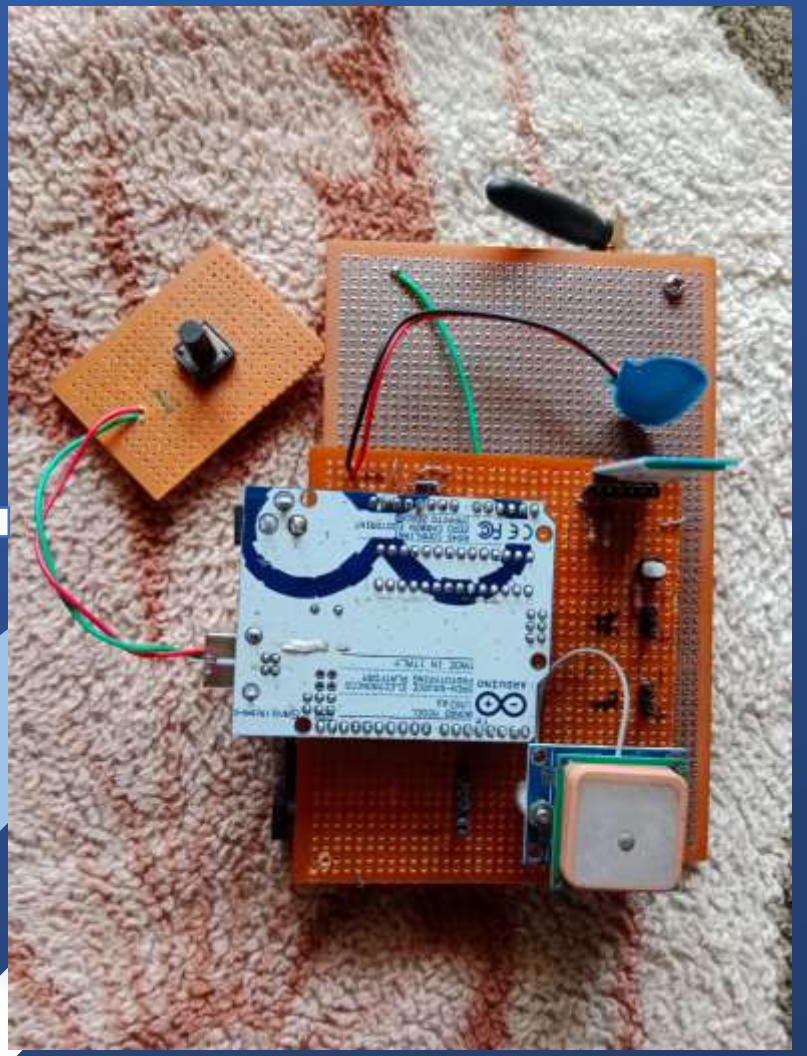


TRANSMITTER

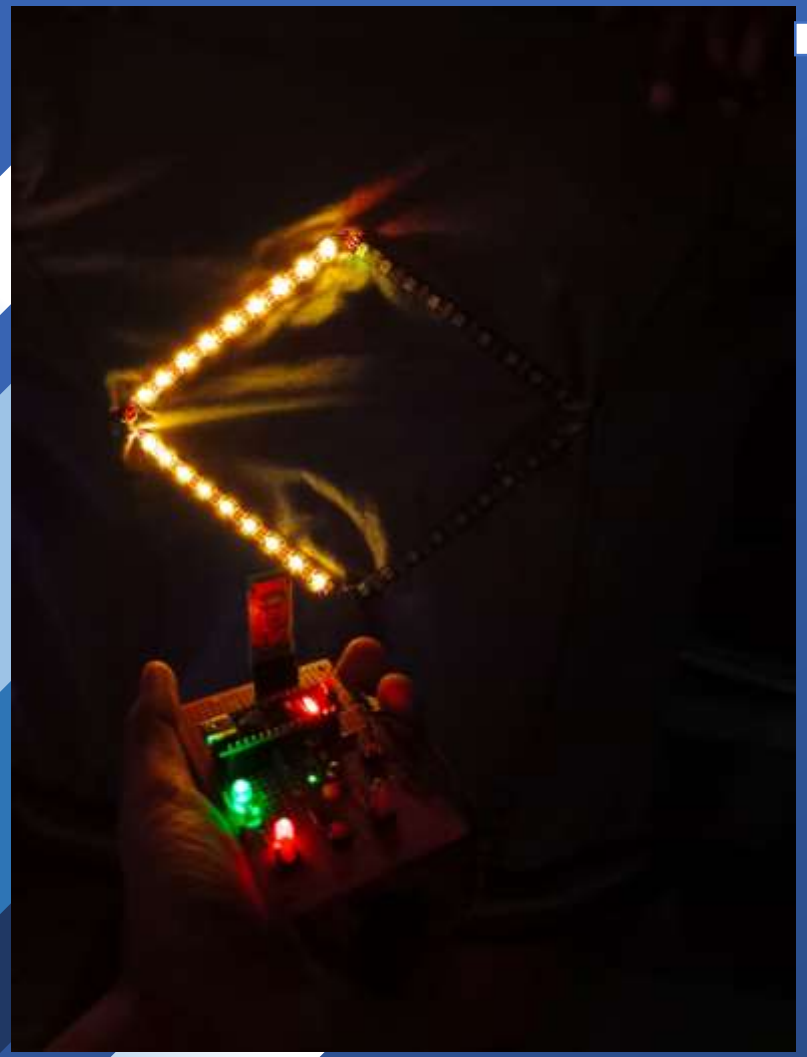
- Accelerometer detects the changes of directions (left,right)
- fed the data to Arduino nano
- Bluetooth module transmit the arduino data to receiver Bluetooth module
- Setting key – for manual indication

RECIEVER

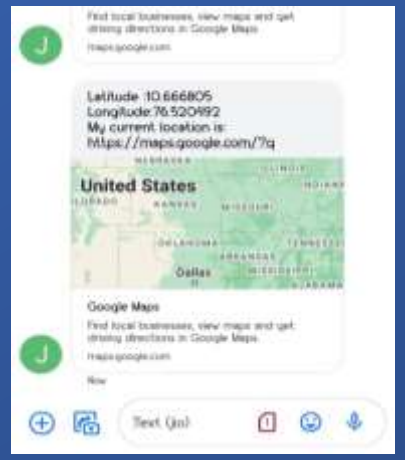
- Received data from the Bluetooth module fed into Arduino and led strips connected to the Arduino works correspondingly to the transmitter system .
- GPS and GSM module is connected to the Arduino. rx,tx pins are connected to digital ports
- When the push button is pressed an address location is send to the mobile number via SMS



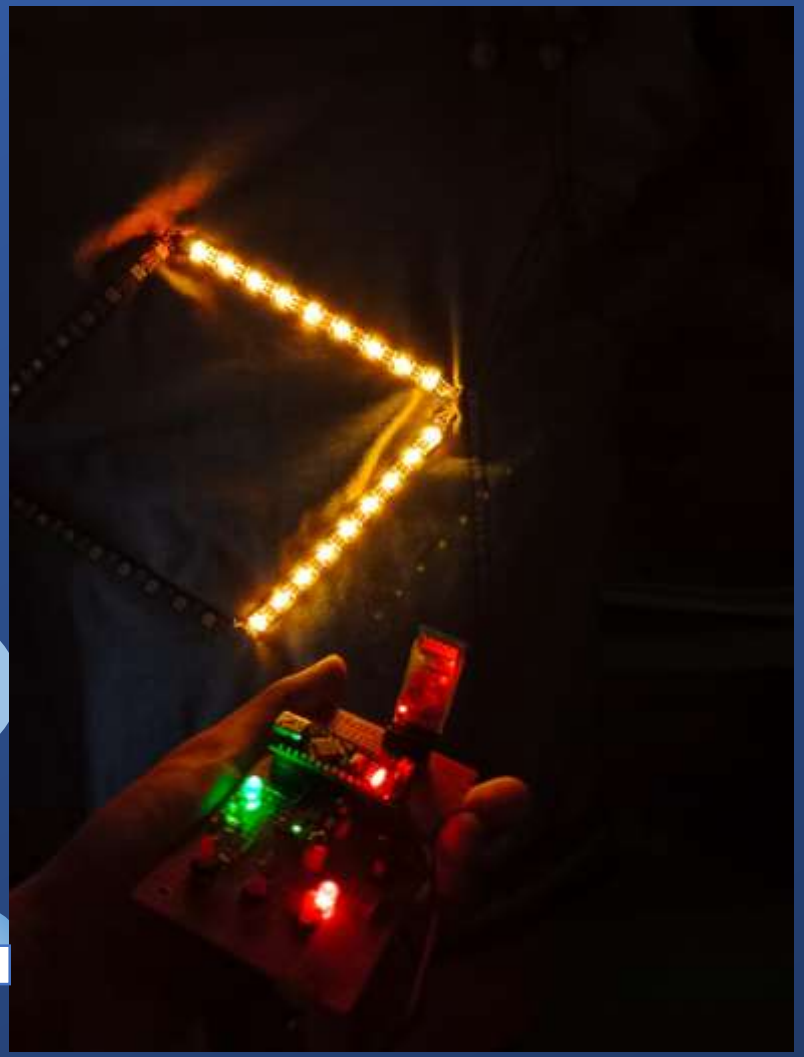
RESULT



LEFT SIGNAL



ADDRESS LOCATION VIA SMS



RIGHT SIGNAL

ADVANTAGES

- Lightweight weatherproof Led vest
- Wireless remote to control the light
- Control turns signals from your bicycle handles
- Smart mode - send data and track your journey by mobiles

DISADVANTAGES

- Need sufficient charge to operate.
- If one led got damaged, the entire side will be damaged due to series connection.

APPLICATIONS

1. Commuting: Many cyclists use cycle indication vests during their daily commute to work or school. These vests improve their visibility to drivers and help them stay safe while navigating through traffic.

2. Recreational cycling: Cycle indication vests are also popular among recreational cyclists who go on long rides or participate in group rides. These vests help ensure that they are visible to other cyclists and drivers, especially when cycling in low-light conditions or at night.

3. Sports cycling: Competitive cyclists also use cycle indication vests during races or training sessions. These vests help improve their visibility to other riders, as well as to spectators and support staff.

4. Delivery services: Cycle indication vests are often used by delivery riders who cycle through busy urban areas. These vests make it easier for them to navigate through traffic and ensure that they are visible to drivers, pedestrians, and other road users.

CONCLUTION

The system fulfils the aim of increasing the cyclist's Visibility especially during night times. The proposed system will be extremely useful for those who rides the bicycle. Because with the absence of indicator in bicycle, there are many accidents occur in our locality. So, with the help of this proposed system, we can reduce the rate of accidents. The proposed system can be further modified from a prototype converted into a product using customized PCB (printed circuit board) for a less bulky, easily wearable device. life protection is the main thing in our life. While this system is about security.

REFERENCE

1) **Mirjami Jutila** (2014), " presents a prototype wearable vest for improving the safety and well-being of children in nurserieswith Xbee radio module, GPS, temperature and accelerometer sensors.

2) **Natalya Bapst (**2016), "wirelessly controlled bicycle turn and hazard warning signal that mimics the behavior of a car turn signal"

3) **Yanhu Ji & Liping Li** (26 Jun 2017),"This aimed to evaluate the effectiveness of an intervention to reduce bicycle injuries among rural middle school students in China."

4) **Himadri Nath Saha (**2018), "Using Arduino and a pair of high-quality airbags, a vest has been constructed"

5) **S Usha** (2020), "we forgot to use the indicator leads to an accident. In order to overcome these types of difficulties, an automatic turning on/off bike indicators using offline GPS navigation system is proposed."

6) **Hana Charvátová** (Aug 2021), "cycling experiments were recorded in a hilly area with routes of about 12 km long. This may also be applied to wide ranging applications in rehabilitation and in the diagnostics of neurological disorders."

Thank You!