

Smart Sensor Bike

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Abstract: *An increase in automobile, automobiles ends in a boom in air pollutants because vehicles are the principle supply of environmental pollution. The smoke emitted from the vehicle includes gases like nitrogen oxides, carbon monoxide, and hydrocarbon. about one-half of the nitrogen oxide gases, carbon monoxide, and one-fourth of hydrocarbon gases in our surroundings are emitted from automobile cars, which results in global warming. due to poor vehicle maintenance and ignition illness. the gases emitted from the exhaust may additionally growth. To reduce environmental pollutants and to boom automobiles' existence, we can use this device. while the fee of gases emitted from the automobile exceeds the edge restrict set with the aid of the government, our system will alert the person thru a liquid crystal display and, the emission degree is likewise displayed. whilst the car proprietor ignores it, the system will alert the user through a buzzer and flip off the ignition of the machine. any other function of our device is while the child safe mode is activated the car will now not exceed the velocity of 50 KMPH.*

Keywords: Carbon monoxide sensor, alcohol sensor, child mode, Automobile.

I. INTRODUCTION

Any activity involving burning things/fuels and mixing materials that motive chemical reactions might also launch toxic gases within the manner and some sports like construction, mining, transportation, etc. produce massive quantities of dust which has the capacity to motive air pollution. There are about two billion motorcycles on the road these days. sincerely they all are powered by using fuel engines that burn petroleum to launch energy. Petroleum is made of hydrocarbons (huge molecules constructed from hydrogen and carbon) and, in principle, burning them absolutely with enough oxygen produces nothing worse than carbon dioxide and water. In exercise, fuels aren't pure hydrocarbons and engines do no longer burn them cleanly. As a end result, exhausts from engines contain all sorts of pollution, appreciably particulates (diverse sizes), carbon monoxide (CO), a toxic fuel), nitrogen oxides (NO_x), risky organic compounds (VOCs), and Lead (Pb) and not directly produced ozone. mixing up these noxious gases collectively and energizing them with sunlight produces a few 23 statistics on air first-rate which have brought about WHO to name for greater focus of health risks because of air pollutants, implementation of effective air pollutants mitigation regulations, and near tracking of the scenario in towns worldwide. In April 2019, WHO issued new information after estimating that out of doors air pollutants was responsible for the deaths of about three.7 million humans underneath the age of 60 in 2012 (TNI 2019). Air first-rate Index America Environmental safety organization special a standardized air pollutants degree indicator is called the Air great Index (AQI), which specially consists of six not unusual air pollutants called criteria to air pollutants that could injure health, harm the environment, and purpose assets damage are carbon monoxide (CO), Lead (Pb), nitrogen dioxide (NO₂), Ozone (O₃), particulate count (PM), and sulfur dioxide (SO₂) (USEPA- APM). In India, the principal pollution manipulate Board (CPCB) has specified CO, NO₂, SO₂, and PM as standards pollution for tracking thru its country wide Air best monitoring Programmed (NAMP). automobiles' Contribution of Air pollutants in city facilities cars constitute a primary source of pollutants in metropolitan cities. Air pollutants such as CO, NO_x, SPM, and HC are emitted from motor vehicles into the surroundings in good sized quantities in addition to CO₂ emission, inflicting extreme.

II. LITERATURE SURVEY

Literature review performs a totally vital position inside the project. It in particular helps in gaining distinct expertise about the basic thoughts to recognition on, and to collect records from exceptional perspectives. via literature assessment



we can get to recognize the way to priorities the paintings and complete it as meant. we can figure out the pros and cons of adopting a technique and enables loads in selection making and also making it greater green. Conclusively literature overview allows us to finish the paintings in a higher manner.

In [1] “Famesh D. Thakre, Bidyut K. Talukdar, Gaurav S. Gosavi, Prashant R. Tayade, “Minimization of CO & CO₂ from Exhaust of Two-Wheeler Motorcycle” Minimization of CO & CO₂ from Two-Wheeler Motorcycle Exhaust Gases This paper consists of a method to do away with CO & CO₂ from -Wheeler motorcycle Exhaust Gases by way of adsorption generation. The emphasis of this paper was focused on growing an surroundings-pleasant and price-effective adsorption version that can actively lessen the quantity of pollution from automobile exhaust gases. right here, adsorption is executed in an adsorber-like structure that includes a charcoal pad, thru which the exhaust gases skip. Charcoal powder is used as an adsorbent that may notably lessen the total cost.

In [2] “NihalKularatna, Senior Member, IEEE, and B. H. Sudantha, Member, and also a IEEE An Environment Air Pollution Monitoring System Based on the IEEE1451 Standardfor Low-Cost Requirements” IEEE Sensors.

This paper entails a sensor-based totally air fine tracking system that uses the contextual version to understand environmental pollution status inside the present and near-destiny pollutants region. This gives steering for alert and protection in line with far off vicinity place. It additionally uses the versatile adjustment inside the sampling period depending on the character of the condition being diagnosed. in the contextual version, it is useful for a tradeoff among battery lifestyles and illustration of emissions. it is able to shop geo sensor batteries, as it limits the quantity of records switch. The output of the electricity is progressed depending on the versatility of the change between sampling costs and battery lifestyles.

In [3] O. Postolache, J. Pereira, P. Girao, "Smart sensors network for air quality monitoring applications", Instrumentation and Measurement IEEE Transactions.

Abu Jayyab et. all has proposed Air pollution and coverage primarily based vehicle Locking device that is designed with an Atmega processor that controls the engine of the vehicle based totally on the values of the sensors and preset date on the controller. For each car which crosses the pollution threshold level in an area, the automobile's engine could be routinely became off through the engineered circuit.

Outcome: on this paper they have got discussed on the Air pollutants monitoring and For valid duration the car will runs and when the vehicle nears to checking out for emission it'll alerts the consumer based totally at the date mentioned.

In [4] M. Gao, F. Zhang, and J. Tian, “Environmental monitoring system with wireless mesh network based on This paper describes a framework for monitoring the ambient air fine in actual time. The network includes many dispensed monitoring stations, which use system-to-gadget connectivity to talk wirelessly with a backend server. The backend server gathers information from the stations in actual-time and translates it thru web portals and cellular apps into records transmitted to customers. each facility is geared up with gaseous and meteorological sensors.

It also presents the ability for data logging and wireless communicate. The device is deployed within the pilot phase and four sun electricity stations which might be constructed over a 1 km² subject. right here, the information is amassed over 4 months, and then overall performance analyses and tests are completed.

In [5] Vijay Savania, Hardik Aggravate and Dhupal Patella, “Alcohol Detection and Accident Prevention of Vehicle”, International Journal of Innovative and Emerging Research in Engineering, Volume 2, Issue 3, 2015

Vijay Savania el al proposed a machine using an alcohol sensor placed in the vehicle at the side of the ultrasonic sensor used for automobile coincidence prevention. The ensuing data is transmitted thru SMS to the close by acquaintance thru the GSM module.

The outcome for the literature survey is as follows:

- On this paper they have discussed how to lessen the carbon emission by means of adapting the Filters.
- They have got discussed at the tracking of the air first-rate inside the environment.
- The Air pollution monitoring and for valid length the automobile will runs and when the automobile nears to trying out for emission it'll signals the consumer primarily based at the date stated.

III. PROBLEM STATEMENT

While the vehicles are not maintained properly the pollutants from the emission will excessive. to check the emission the vehicles, need to visit unique test services. This usually creates extra paintings and technically it is no longer a really

perfect answer to control the pollution. This hassle we located even as analyzing the content material. After this evaluation, we planned to implement continuous monitoring of the vehicle.

IV. OBJECTIVES

The object of this project is to provide a novel and innovative way of preventing drunkendriving of a Motorbike and Preventing the Pollution caused by emission.

V. METHODOLOGY

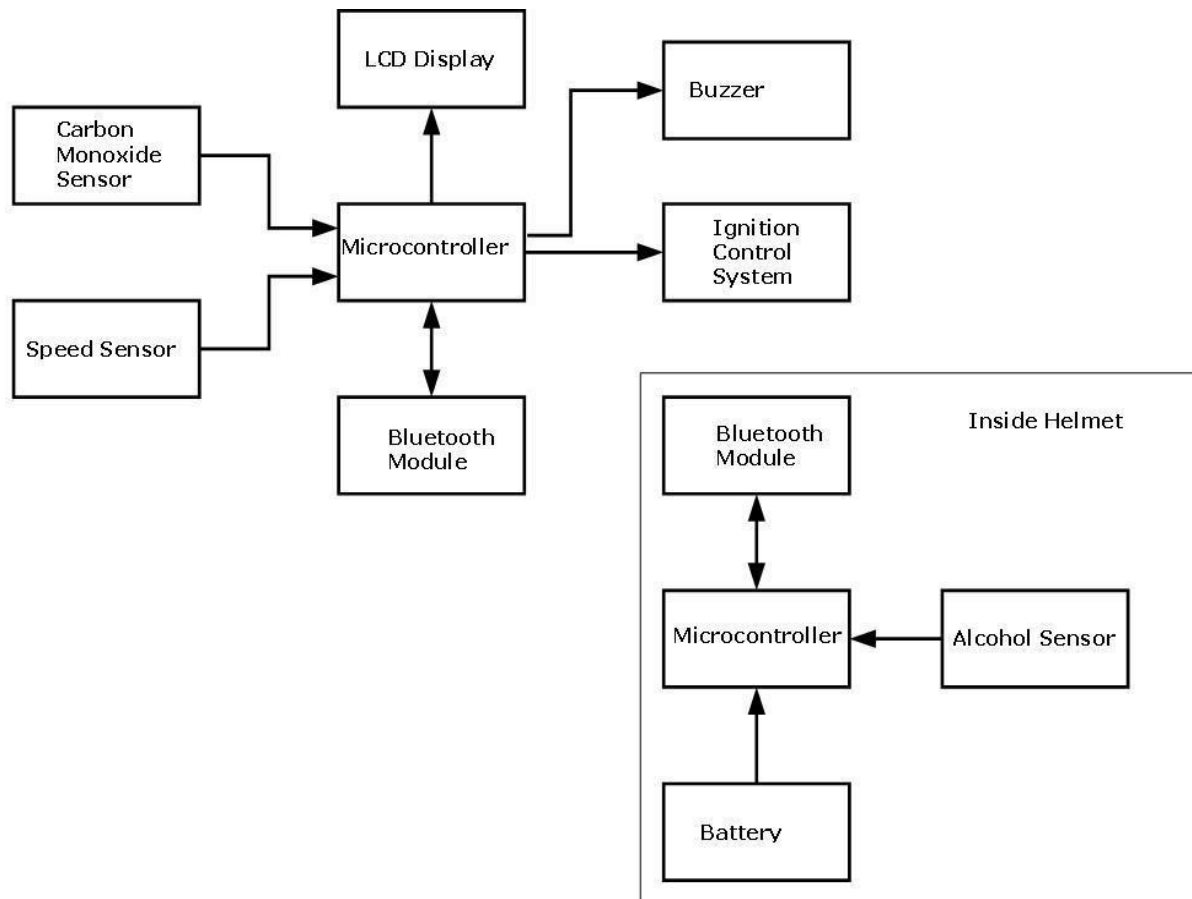


Fig. 1 . Block diagram of the proposed system

In the proposed gadget there are two Bluetooth and microcontrollers are used. The microcontrollers are Atmega 328 p-primarily based Arduino Nano and Bluetooth are based totally on HC05.

Helmet segment: Inside the helmet phase Arduino nano, Alchol sensor, Helmet position Sensor, Bluetooth are used. whilst the Helmet section is powered ON, the alcohol sensor starts trying out the alcohol in the breath, and ship the information alerts to the microcontroller through analog channels of microcontroller. The microcontroller converts the analog received statistics from the sensor into virtual layout and technique information to transmit to the Bluetooth, The Bluetooth is communicated via the UART channel of the Microcontroller. The microcontroller sends Alchol information together with the Helmet role details to the Bluetooth, the Bluetooth transmits all the facts to organized Bluetooth device.

Receiver facet: Within the receiver aspect the Bluetooth gets the information from the transmitter and sends the information to the microcontroller using UART Channels, The microcontroller gather the facts obtained and manner the records, If the alcohol level is high or the helmet isn't weared the Microcontroller Turns OFF the electricity providing to

the engine the use of a relay. here we have used 5Volt Dc relay to control the strength from battery to engine of the motorcycle.

A carbon monoxide sensor is hooked up near the exhaust of the motorcycle, this sensor collects the carbon monoxide inside the air. these sensor sends the analog facts to the microcontroller the usage of analog to digital converter channel. The microcontroller converts analog information to digital records and system it to examine, If the carbon monoxide degree is high the microcontroller shows the information and offers the sound alert the use of Buzzer. The microcontroller can't drive the buzzer immediately for this reason we've used Transistor to extend the signal to govern the buzzer, The microcontroller offers the alert sound and permits the person to experience every other short time to drive certain distance and turns off the vehicle strength supply using the relay and presentations the facts inside the lcd.

Baby Mode: To activate the child onboard mode we've furnished the transfer, while the switch is grew to become on it method that the kid mode. throughout this mode the Microcontroller constantly monitors the rate of the vehicle using the velocity sensor. when the velocity of the automobile is better than the more secure degree that is prefixed, the microcontroller gives the alert thru buzzer and lcd show. although the acceleration is extra, it robotically reduces the rate. when the child onboard mode is deactivated (off) The person can boost up to any velocity.

The acceleration sensor is connected to ADC Channels, primarily based at the Acceleration, it sends the facts to microcontroller the use of Analog to digital converter channel. The microcontroller acquire the data and primarily based at the acceleration variation it offers alert to the rider in infant on board mode.

5.1 Hardware Requirements

- Arduino nano
- Carbon monoxide sensor(MQ 07)
- Bluetooth module (HC 05)
- Speed sensor(hall effect sensor)
- Battery
- PCB ,berg pins
- Alcohol sensor(mq137)
- Relay, Potentiometer
- Bc547 , 7805 voltage regulator
- Buzzer & LCD display
- Helmet

5.2 Software Requirements

- Arduino ide

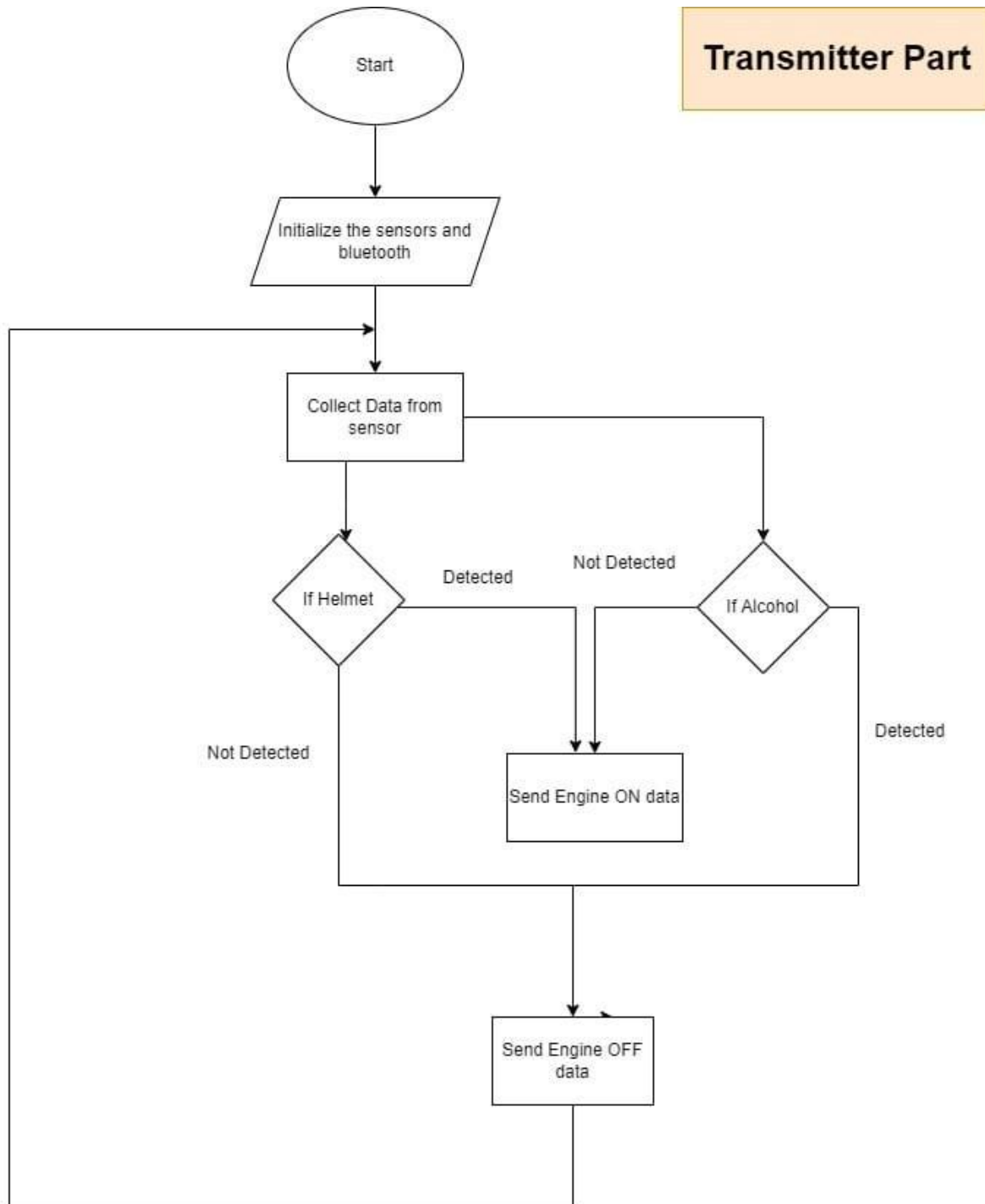
VI. EXPECTED OUTCOME

The Smoke emission stage might be displayed at the lcd and the smoke emission is more than the brink the engine of the car will turn off and when the baby is on board the automobile will circulate at a protection pace stage. If the rider ate up alcohol more than the desirable variety, the car engine will be turned off.



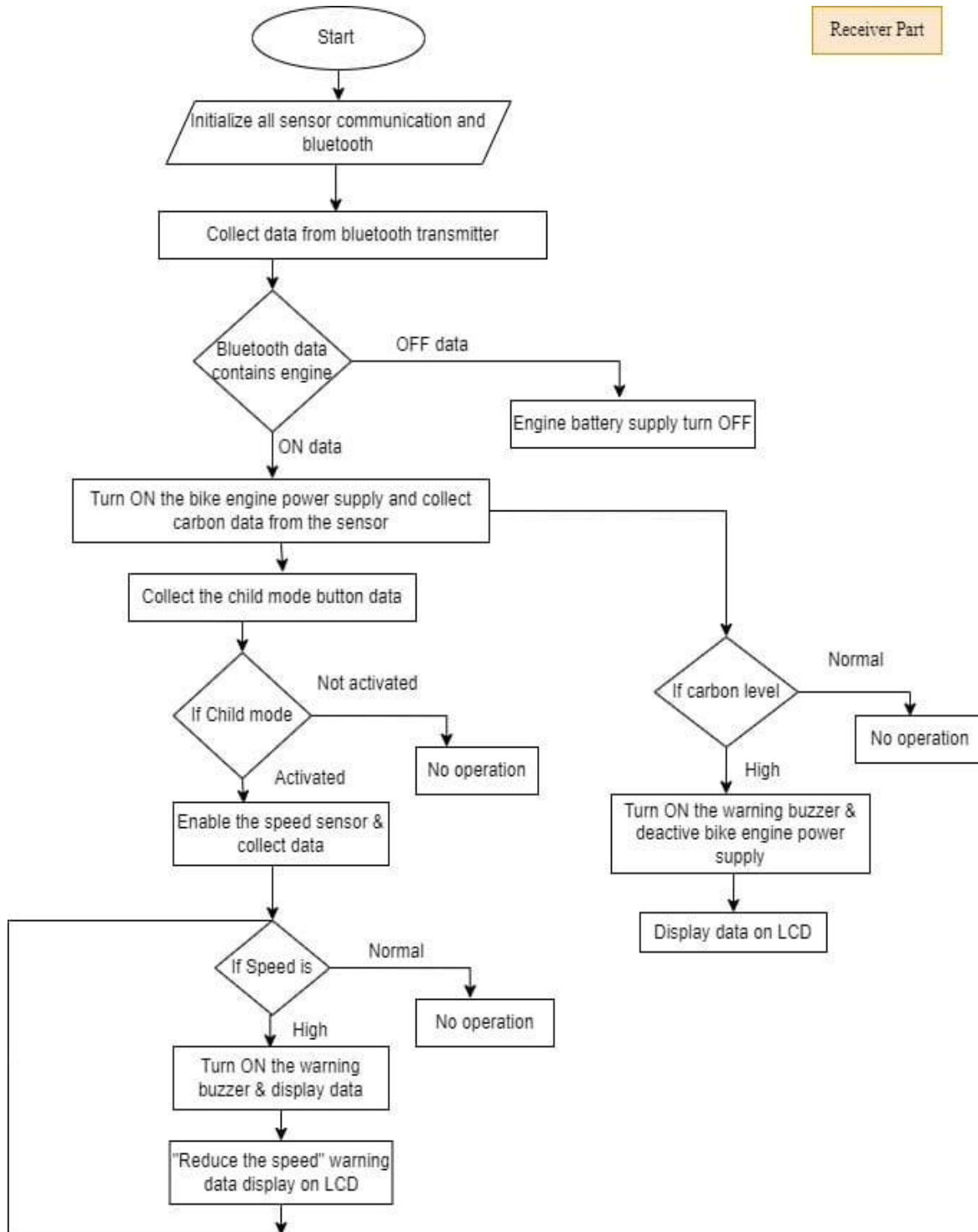
Flowchart of implementation of the proposed model

Transmitter side →



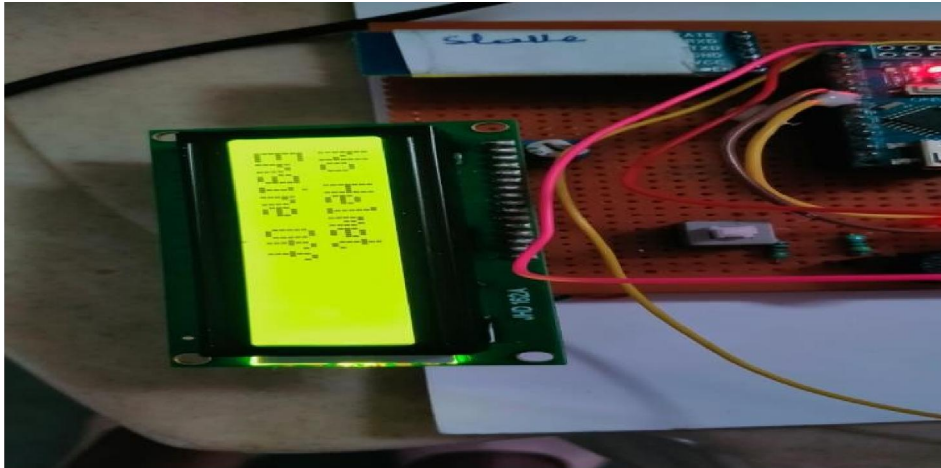


Receiver side →

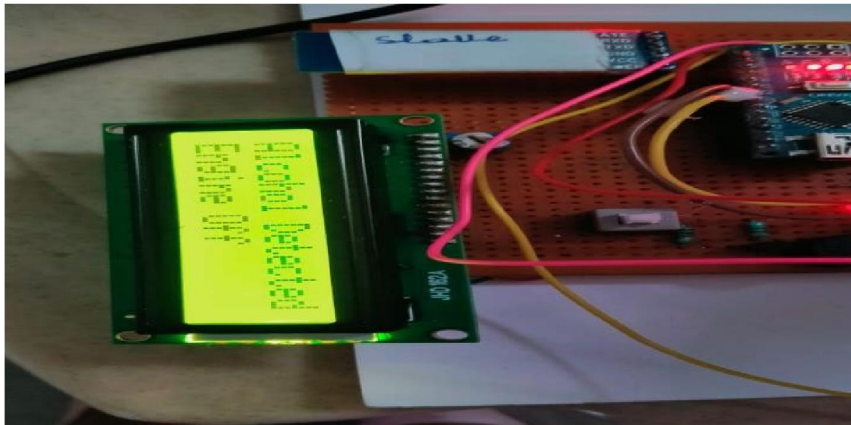




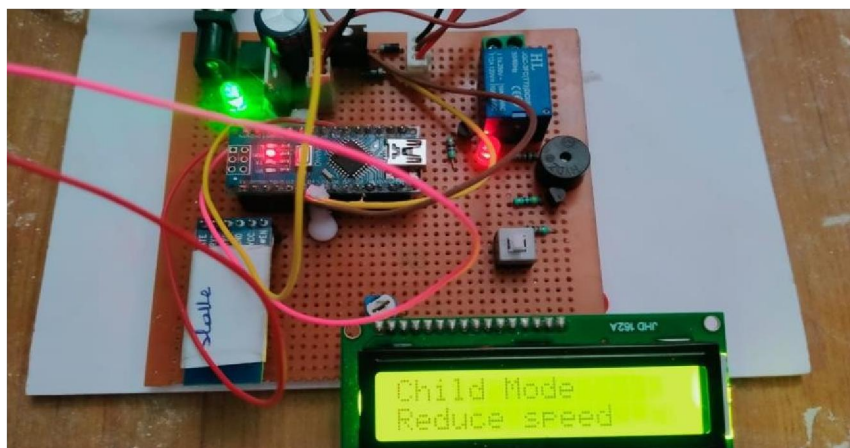
Helmet part output :



Alcohol Sensor output :



Child mode output :



VII. CONCLUSION

The proposed machine carries sensors, which detects the parameter (Carbon monoxide) that causes vehicle pollution. whenever Carbon monoxide level will increase, the sensor senses the situation and the car owner is given an alert or signal. The emission tiers are Displayed on the lcd screen. Rider safety monitoring could be taken care by means of

alcohol sensor placed within the helmet, on every occasion the sensor detects the alcohol, it'll alert the person and flip off the engine.

REFERENCES

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