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Measurement of Temperature, Humidity and Dust Using IoT

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RYM Engineering collage

Abstract: Humankind, moving to a period centered upon improvement has overlooked the significance of supportability and has been the real guilty party behind the rising Pollution levels in the world's air among all other living life forms. The Pollution levels at certain spots have come to such high degrees that they have begun hurting our very own It will being. As age of poisonous gases from ventures, vehicles and different sources is immensely expanding step by step, it winds up hard to control the dangerous gases from dirtying the unadulterated air. In this project a practical air Pollution observing framework is proposed. This framework can be utilized for observing Pollutions in demeanor of specific territory and to discover the air peculiarity or property examination. In this proposed system, we are monitoring the air by using arduino board & temperature and humidity sensors. Here we are using adapter for power supply even you can use 2amp transformer. Humidity sensors, temperature sensor, Wi-Fi module is ESP32 and LCD display these are also the hardware parts of this projects. By using temperature sensor we can monitor air temperature. then whatever temperature may read by sensor that will be displayed on LCD. Even the temperature & humidity will be displayed on LCD. This entire data can be uploaded over server through WI-FI module. Depending on the delay the above cycle is repeated.

I. INTRODUCTION

Air contamination can be characterized as nearness of moment particulars that bothers the working of common procedures and furthermore creates unfortunate wellbeing impacts. In another way contamination can influence the characteristic periodicity and furthermore can irritate the wellbeing of person. As modernization and automation is becoming in all respects widely Pollution is likewise getting presented everywhere way. It has been seen that in mechanically creating or created nations human wellbeing get significantly influenced due to Air Pollution, where there is no framework to screen it or monitor it [1]. In late explores it has been demonstrated that there is a high connection batten's climatic toxins and maladies like asthma and lung related ailments. Air Pollution is currently a noteworthy worry over the globe and WHO has built up specific rules to confine the cutoff points of specific gases like O3, NO2, SO2 [2]. The Air Quality Index estimation and Pollution observing are mostly done AQM stations that are essentially exact and precise. They show ideal unwavering quality and viable in estimating a wide scope of air toxins. Be that as it may, even after every one of these stations slack fundamentally in three territories: 1) Infrastructure, essential for establishment as a result of the colossal size, 2) Operational necessities are basically mind boggling, 3) The common costs of setting up, day by day support and alignment. Thinking about the evil impacts of Pollution on people, in 2012, one out of eight of all out worldwide passings were brought about via air Pollution which was 7 million unexpected losses all around [3]. These passings were a consequence of various ailments, for example, ischemic coronary illness, interminable obstructive pneumonic sickness, stroke, lung malignant growth and intense lower respiratory diseases in youngsters [3]. The foundations for every one of those illnesses were related with outside and indoor air Pollution consolidated. Presently, in the event that one discussions about water Pollution, expending defiled water can prompt genuine medical problems in individuals and one may get influenced by hazardous waterborne ailments brought about by proto zoans, infections and microscopic organisms', for example, amoebiasis, hepatitis An, E coli and loose bowels. According to the WHO (world health association) these sicknesses have a portion of around 3.6% in the complete every day worldwide It right of ailments [4], and cause about 1.5 million human passings yearly. Additionally, commotion Pollution is likewise as unsafe as the other two sorts of Pollution as it might prompt hearing It takes, hypertension, ischemic coronary illness, irritation, and rest aggravation [5]. The system of ceaseless internet checking utilizes sensors to screen the numerical value, and afterward transfer to control focus by system. The method for information move incorporates wired and wireless frameworks. Despite the fact that framework is solid it is having weaknesses everywhere and dynamic range, for example, complex system cabling, costly and so forth. With widely creating correspondence advances, presently multi day's air Pollution checking framework is frequently planned in wireless mode. In any case, these modes are surprising expense in both establishment and support.

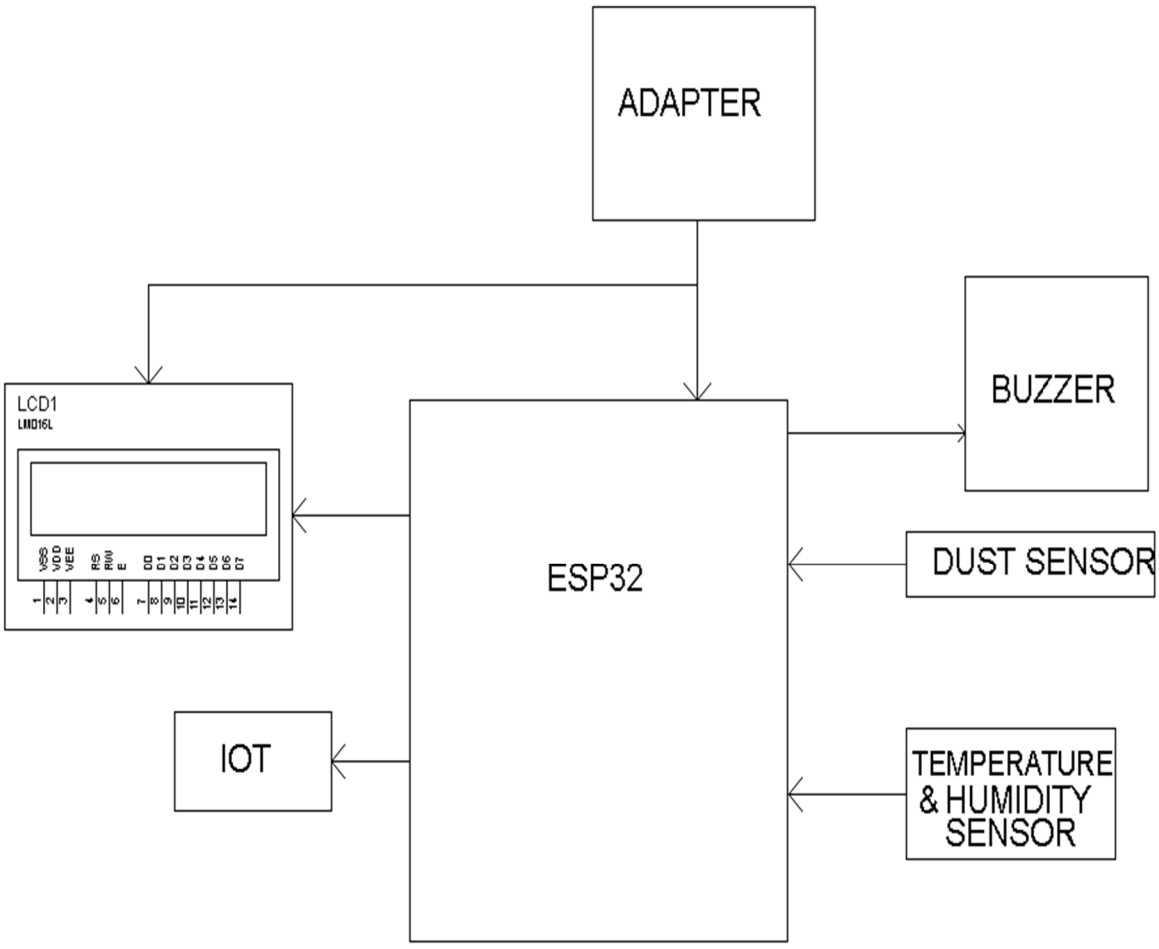
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Yet, on different handy cellular sensor systems have been quickly created during late decades and utilized on the huge systems at military, enterprises as well. In view of these focal points, it is currently being connected in ecological observing [4].In request to actualize such framework single integratedchip micro-controller alongside exhibit of sensors, IOT device and GPS-device is utilized.

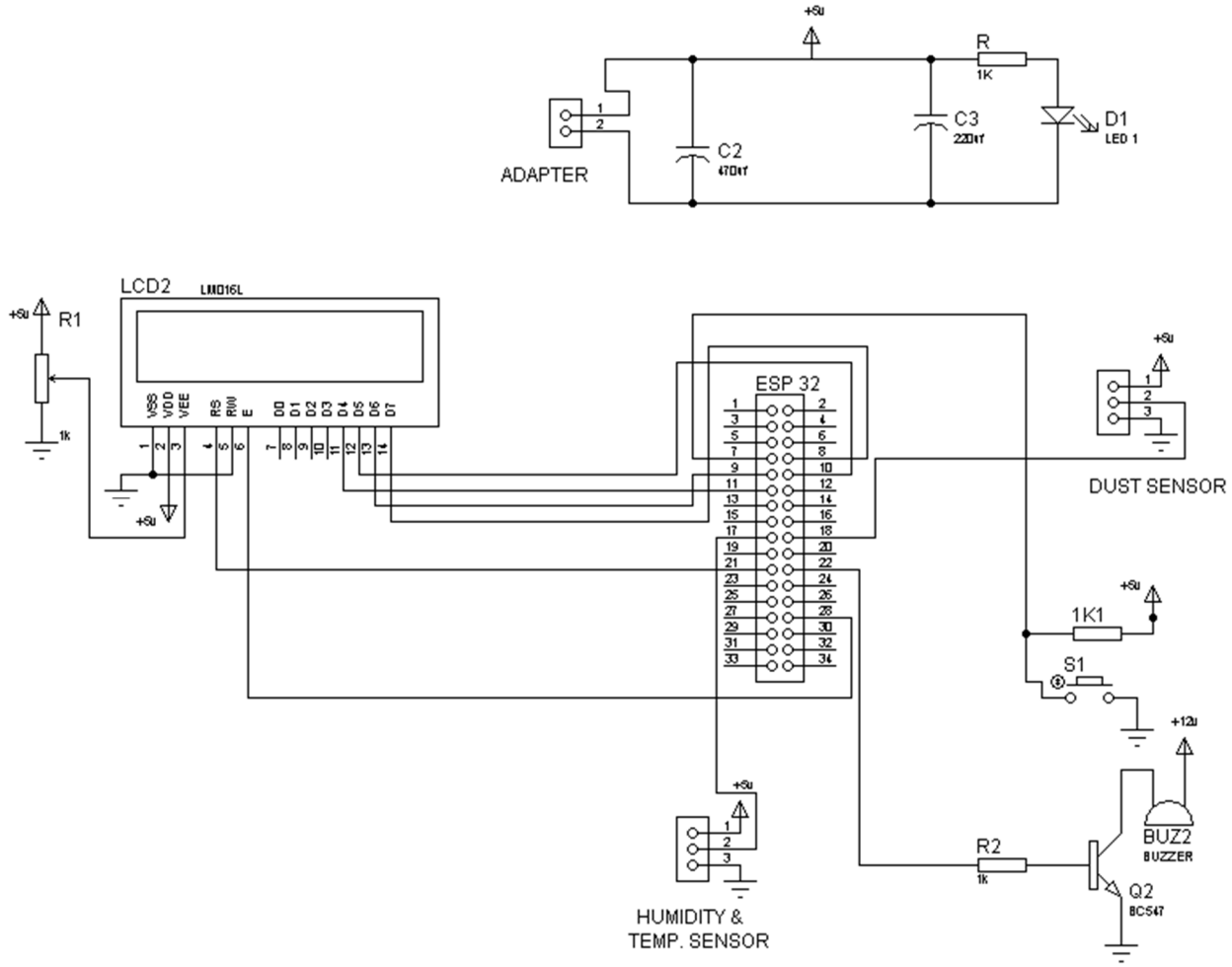
II. OBJECTIVE

1) Air pollution is a growing issue these days.
2) Effect of air pollution has many bad things and the others may cause problems to our health, for instance, asthma, cough, and lung disorders.
3) It is necessary to monitor air quality and keep it under control for a better future and healthy living for all.
4) To monitor the air quality and controlling purpose, this “MONITORING & CONTROL SYSTEM “can be used.
5) The sensors interact with Arduino UNO which processes this data and transmits it over internet.

III. BLOCK DIAGRAM



IV. CIRCUIT DIAGRAM



A. *Hardware Requirements*

1) ESP32
2) LCD Display
3) Humidity & Temperature Sensor
4) Buzzer
5) Dust Sensor
6) LED
7) Diode
8) Resistor
9) Capacitor

B. *Software Requirements*

1) Arduino
2) Eagle

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V. ADVANTAGES

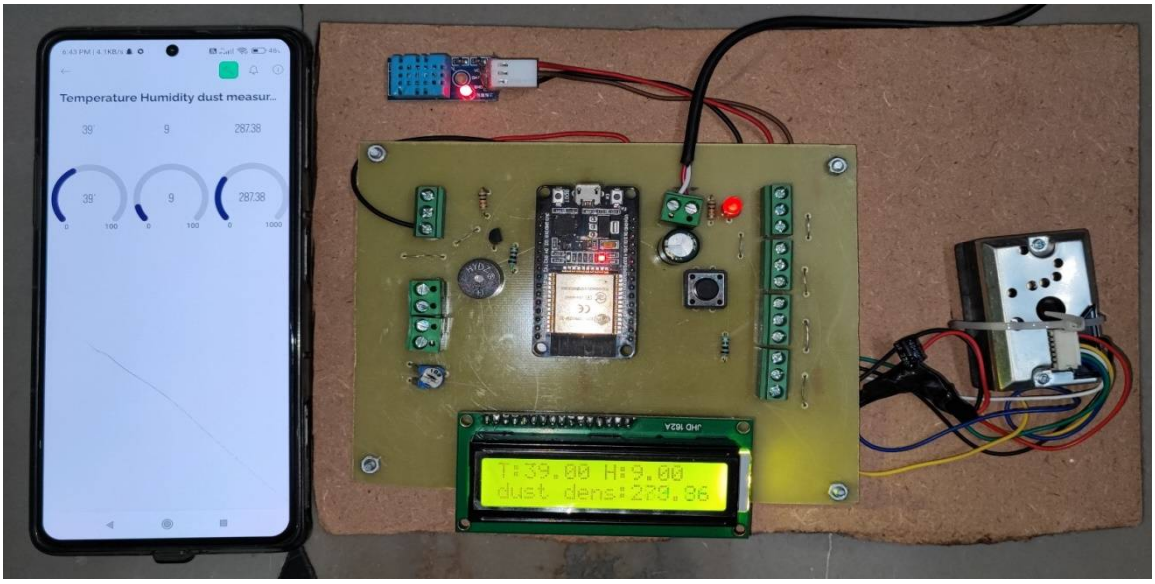
1) Monitoring of Temperature, Humidity & Dust in Air Helps to Identify Potential Health Risks.
2) Implements to Protect the Environment and Public Health.
3) It Reduces Preventive Maintenance & Corrective Maintenance Costs.
4) It Eliminates Periodic Inspections of an Equipment at Industrial Sector.
5) Temperature Measurement of an Equipment Helps to Avoid Damage Due to Overheating.

VI. APPLICATIONS

1) Home Heating
2) Air Conditioning
3) Industrial Places
4) Medical Sector
5) Fire Safety
6) Weather Reports
7) Laboratory
8) Engineering Projects
9) Storage & Transportation of Flammable Materials
10) Gas Import & Export Plants

VII. RESULTS AND DISCUSSION

A. *Expected Output*



B. *Discussion*

Temperature and humidity sensors are fundamental components in IoT systems, enabling monitoring and control in various applications like smart homes, agriculture, and industrial processes. These sensors collect data, which is transmitted through IoT networks for analysis and decision-making.

In smart homes, temperature and humidity sensors contribute to energy efficiency by optimizing heating, ventilation, and air conditioning systems. They ensure comfort while reducing energy consumption.

In agriculture, these sensors help optimize crop growth conditions by monitoring environmental factors. Farmers can adjust irrigation and ventilation systems based on real-time data, leading to improved yields and resource efficiency.

In industrial settings, temperature and humidity sensors ensure product quality and safety by monitoring environmental conditions during manufacturing and storage processes. Any deviations from optimal conditions can trigger alerts for corrective actions, preventing costly losses.

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VIII. FUTURE SCOPE

In this , we found the importance and fruitful benefits of implementation of IoT in remote health monitoring systems. The compact sensors with IoT will make a huge impact on every air monitoring , that even though they are away from home and physician, this helps them to reduce the fear of danger. The sensory data can be acquired in home or work environments. Also, the challenges in sensing, analytics and prediction of the disease are also highlighted and those can be addressed to provide a seamless integration into the medical field.

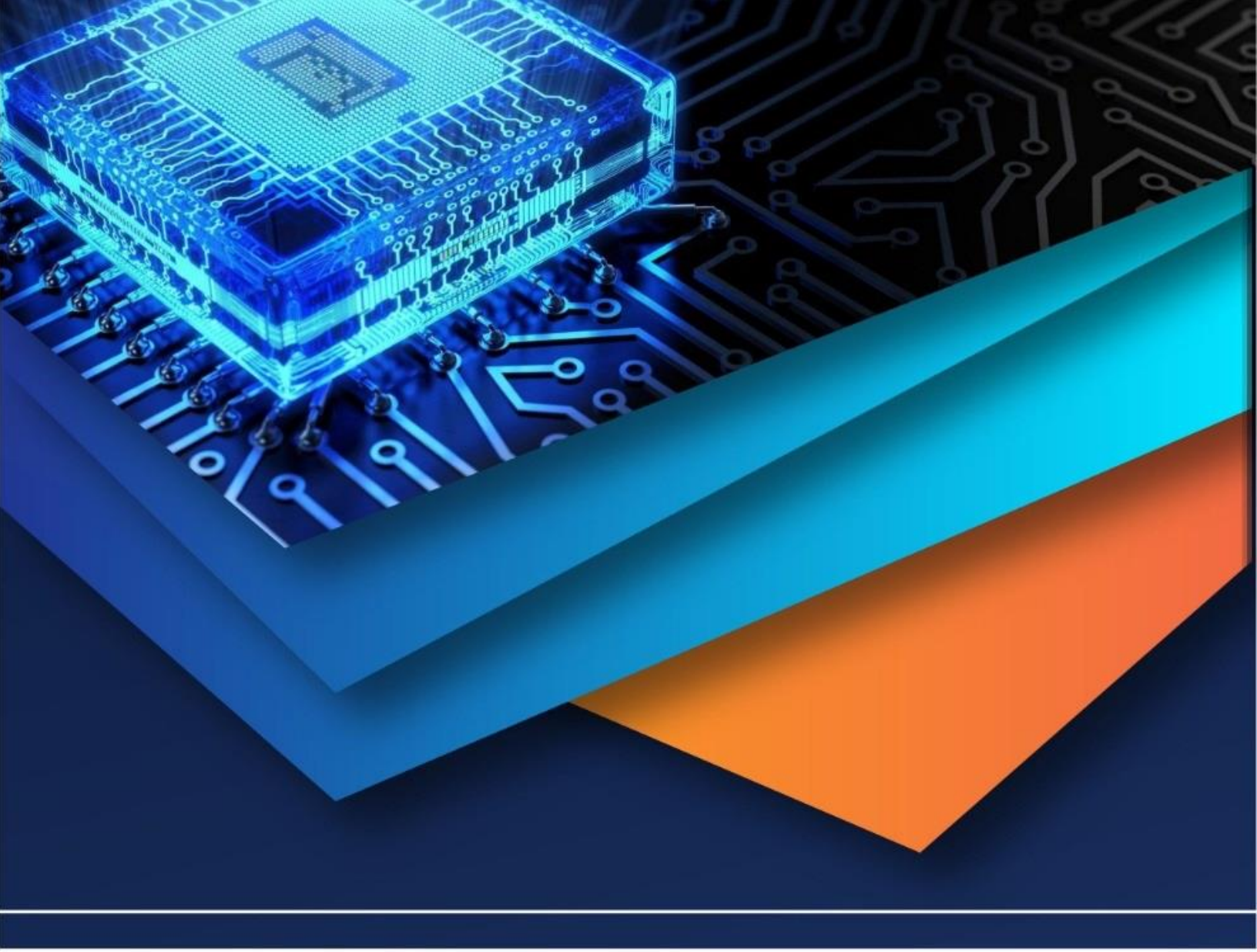
IX. CONCLUSION

The Internet of Things is considered now as one of the feasible solutions for any remote value tracking especially in the field of health monitoring. Air quality is a basic issue that clearly impacts human prosperity. Air quality data are accumulated remotely from checking bits that are furnished with an assortment of vaporous additionally, meteorological sensors. This data are researched and used as a piece of envisioning obsession estimations of pollutions using keen machine to machine organize. Ongoing air contamination remote checking framework utilizes xbee though zigbee and gps based air contamination observing framework and wsn based air contamination checking framework utilizes zigbee for sending gathered poison data to the pc. In wireless sensor system based contamination checking framework a bluetooth system is utilized just as investigation is finished utilizing id3 calculation. Arduino air quality checking framework utilizes usb link for information move additionally ongoing chart plotting has done. All the above framework has short range to send information to the pc. Experimental results and case study demonstrated the efficiency and flexibility of the proposed system. The developed system will help the smart-environment users to discover how a little smoke can alter the natural balance thereby leading to environmental pollution. The proposed system can be extended to monitor and control air and sound pollution in developed cities, industrial areas and public health-care centers for sustainable development.

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