

MSME IDEA HACKATHON 2.0 (Theme Based)

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6. Idea Theme	Safety in Transportation & Industry
7. Title of proposed idea/innovation	MOBILE AIR POLLUTION MONITORING AND BUS TRACKING
8. Briefly explain newness/uniqueness of the innovation	<p>Because of the increased burden on public transportation like buses, we need a smart and portable management system to track the location of a bus. With the increase in pollution levels in the atmosphere, a system is needed where we can constantly monitor the surrounding pollution levels. Instead of an inert system, where it has to be fixed in a single place, a mobile system, which has more flexibility, is suggested. The current existing methods only either track the bus location or just monitor the air pollution levels at a particular designated area separately. Which may not be that useful on its own. It also becomes useless if any precautionary measures are not taken based on the high-risk levels. So here, the mobile application comes into play. We are currently making the sensors take real-time data by placing it on one of the college buses. Connecting the air pollution monitoring sensors to the GSM module along with a GPS sensor, we can view the current location of the bus along with the PM sensor data. There would also be an AHT10 sensor to measure temperature and humidity. The PM sensor takes in data on the particles under 2.5 and 10 μm. It shows us the pollution levels in the atmosphere. It updates at rapid time intervals. This system is accurate and also cost-effective. It helps for better time management, safety and on-time response in case of emergencies by viewing the graphical and locational data displayed on the mobile application.</p>
9. Concept & Objective	<p>A bus-tracking app forms part of the entire system of a real time bus management and serves as a convenient access point when downloaded onto the phone of the users. The bus-tracking app provides parents and authorities a map view of the current position of the bus with information of when the bus is currently located. To begin with a bus-tracking app uses modern GPS technology. thus, GPS devices installed within a bus and this device transmit their location in real time on map. The buses are installed with GPS devices that are connected with the college management. College authorities (TRANSPORT INCHARGE) track it from their monitors meanwhile parents can track the moment on their mobile phones. If there is any unplanned delay or a repair in the bus this system also conveniently facilitates the driver in communicating directly with the college management and with the parents. With the bus tracking application, we are adding another application called air pollution monitoring system. Even now a days air pollution is one of the major effective pollutions which harms the environment. Several studies have shown the detrimental effects of air pollution on human health and wellbeing among all the air pollutants, particulate matter (PM) pollution is one of the particular concerns. By adding PM 2.5 and PM 10 sensors we can monitor them. PREVENTION IS BETTER THAN CURE</p>

10. Specify the potential areas of application in industry/market in brief	<p>As we have collected information from our campus students and faculty, we came to know that the students are facing some difficulties in the daily operation of bus transport system, mainly that of buses and the movement of the vehicles is affected by the different uncertain conditions such as unexpected bus delays due to traffic congestion leads to waste of our valuable time. The students and faculty who are travelling to college via urban areas, expose themselves to air pollution which could affect everyone's health. When we breathe in air pollutants, the dust particles and harmful gases can enter into our bloodstream and result in coughing, itchy eyes, respiratory disorders and lung diseases, which leads to hospitalisation. To overcome these problems, with our solution mobile air pollution monitoring and bus tracking system, we can keep track on the current status of the bus, monitoring the air pollution levels and updating the status of those to the nearest corresponding departments. The stakeholders of this application in the market will be many organisations such as educational institutions, hospitals, MNC companies and industries etc. Here, the stakeholders are students, faculty, travellers, job holders, elderly people suffering from respiratory diseases like asthma, chronic obstructive pulmonary diseases etc. By the data collected by our module, they can take precautionary measures to prevent any further damage to their health.</p>
11. Briefly provide the market potential of idea/innovation	<p>According to the information from educational institutions and the pollution control board, there is a huge demand for tracking of buses and knowing environmental conditions. Both global air quality monitoring and vehicle tracking system market size was valued at INR 1800 crores in 2021. It is projected to reach INR 6100 crores by 2030, growing at a CAGR of 13.9 during the forecast period (2022–2030). As we know that the pollution of air is a never-ending process in the present generation, we must take some precautionary measures to minimise its adverse effect on people's health. Since our module is a mobile communicating device it is possible to collect data at different locations. We can also increase the scope of the project by placing the currently developed module on other modes of transportation. There is also a possibility to add other metrics like direction, speed, route mapping etc in the future. As long-as there are processes related to development, which includes technology and machinery related work, the global pollution won't be coming down soon either. So, our product has much potential use in the future where health would become the topmost priority in society.</p>
12. Uploaded Proposal	View/Download