



### Industrial Consultancy & Sponsored Research (IC&SR)

## Method and side-view mirror system of vehicle for monitoring ambient parameters during vehicle mobility IITM Technology Available for Licensing

### Problem Statement

- Static monitoring systems suffer from limited area coverage and hence low accuracy of the data collected.
- Further, mobile sensing enables collection of data in real time from different areas of a location in a dynamic way.
- Generally, the mobile sensing is performed by mobile sensors placed on top of the vehicles which move throughout the city.
- However, the conventional mobile monitoring is done using sensing devices having custom form factor that are retrofit on mobile systems such as vehicles.
- Fixing the sensing devices on the vehicles would require major modifications to the vehicles for mounting the sensing device, operating the sensing devices, etc. which affects the mobility and aesthetics of the vehicles.
- Hence, there is a need of advanced mirror system which addresses above issues.

- Said Patent talks about the side-view mirror system, which comprises:

1

•First & second set of sensors placed at hollow casing of the side-view mirror of the vehicle behind the reflective glass to identify the ambient parameters

2

•Extracting the second set of ambient parameters from the first set of ambient parameters and vehicle parameters to generate and send the common message to the cloud-server and side-view mirror system of the another vehicle for monitoring the communicator using the ambient parameters & vehicle parameters;

3

•Wherein data management controller connected to the communicator and each of the sensor extract said set of ambient parameters & receive the set of vehicle parameters to generate common message.

### Technology Category/ Market

**IOT based System** for monitoring plurality of ambient parameters during vehicle mobility;

**Industry:** Automotive, Electric vehicle(EV), HEV  
**Applications:** Electric vehicle, HEV.

**Market:** The global automotive IoT market is projected to grow from USD 131.2 billion in 2023 to reach USD 322.0 billion by 2028 at a CAGR of 19.7% during forecast period.

### Technology

- Present Patent describes a **side-view mirror system** of a **vehicle** and a **method** for **monitoring plurality of ambient parameters during vehicle mobility**.
- Current method proposed to a IoT based system capable of monitoring multiple ambient parameters shown in figure.

### Intellectual Property

**IITM IDF Ref. 2242;**  
**IN Patent No. 416315 (Granted)**  
**PCT Application: PCT/IN2023/050044**

### TRL (Technology Readiness Level)

**TRL- 3/4**, Proof of Concept ready, tested and validated in Laboratory

### Research Lab

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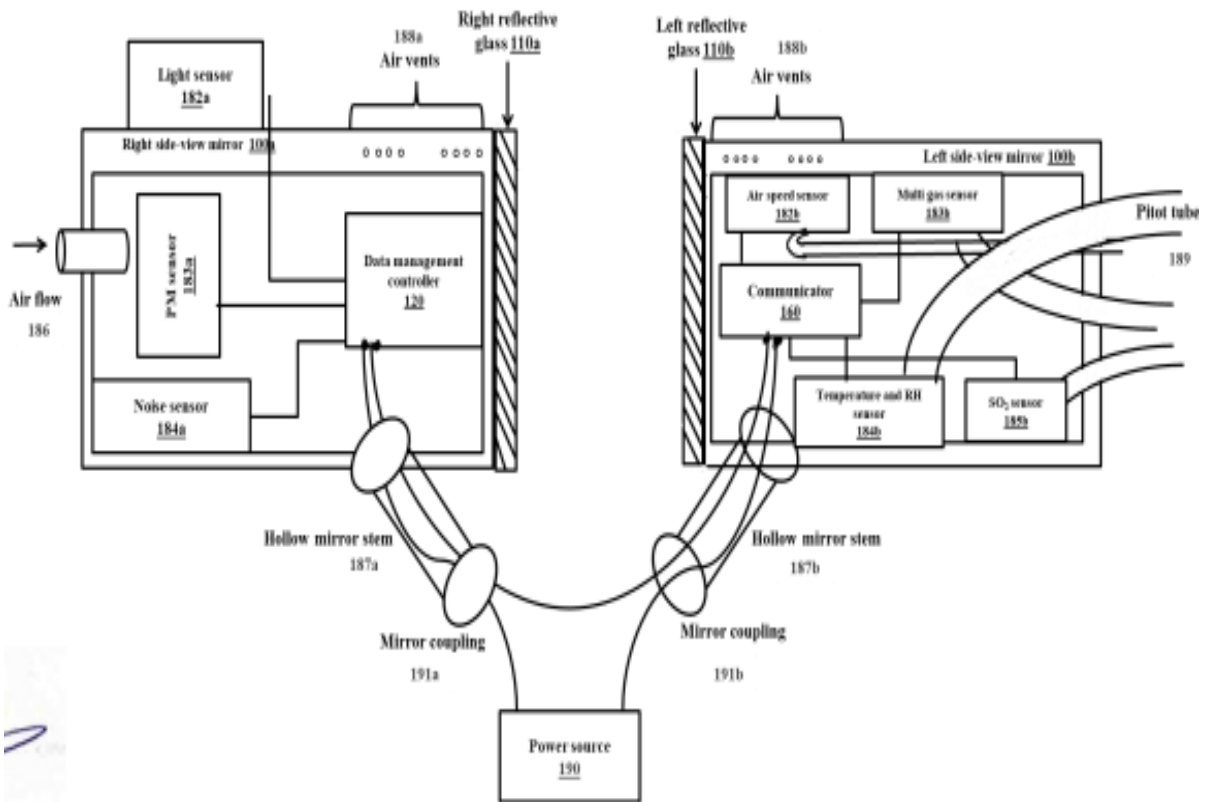
**Key Features / Value Proposition**

**❖ Technical Perspective:**

- 1. Mounting the sensors** in the **hollow casing** of the **side view mirrors** is the **most optimal position** to measure the ambient environment parameters **without** the need making **additional fixtures**.
- 2. The data management controller** is located in the right side-view mirror and the left side-view mirror of the vehicle. The data is transmitted to a remote cloud server for processing.

- ❖ Industrial Perspective:** Data collected from the side-view mirror system includes **real time spatio-temporal air quality map, noise intensity map, road condition map, Ambient light, UV and IR intensity map, Ambient temperature and relative humidity map** and others.

**Images**



**FIG.1: : Illustrates the block diagram of side-view mirror system of the vehicle for monitoring plurality of ambient parameters during vehicle mobility**

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