

Smart Filter Performance Monitoring System

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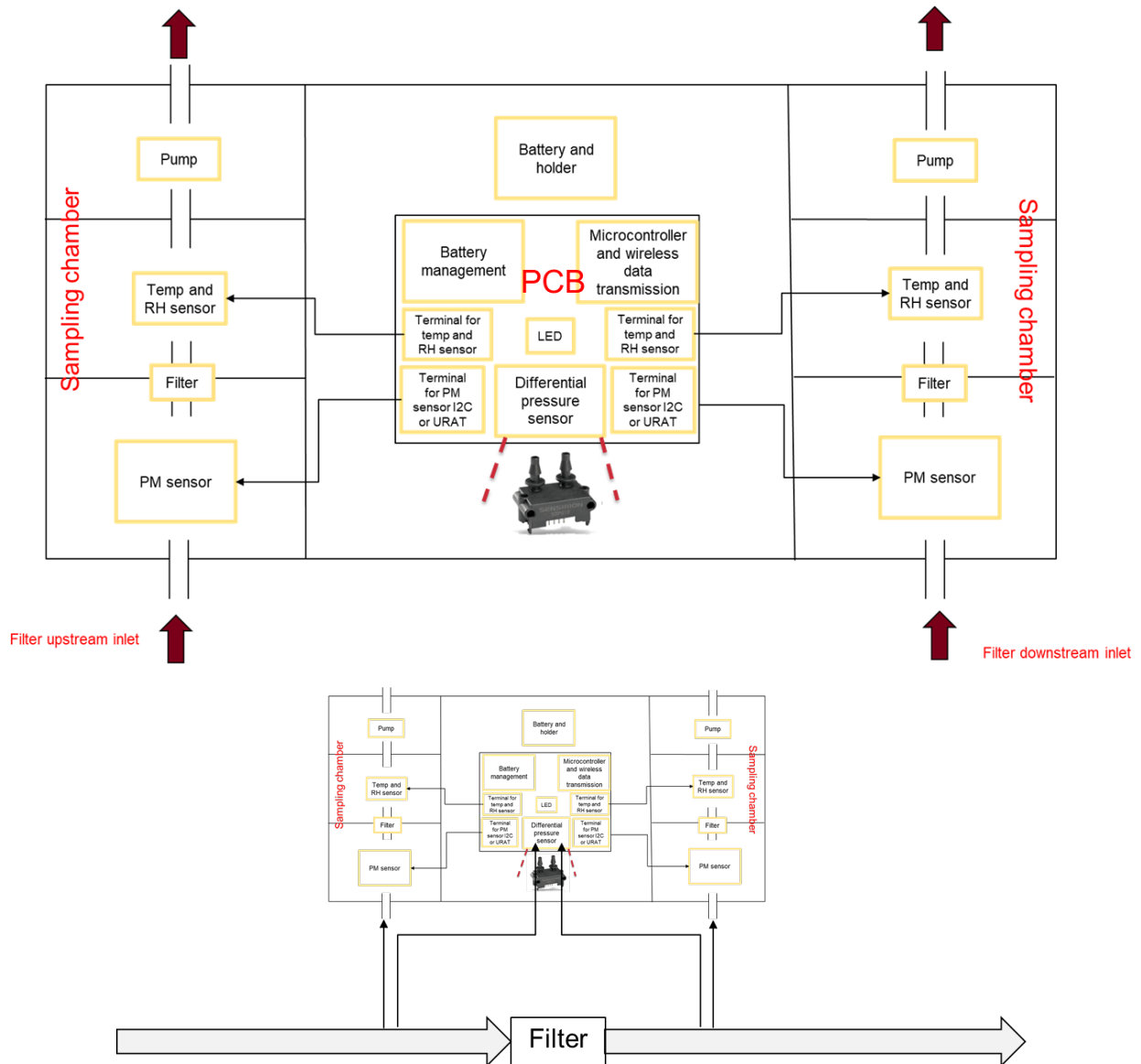


Fig S1. Design (upper illustration) and configuration (lower illustration) of the second-generation smart filter monitor system.

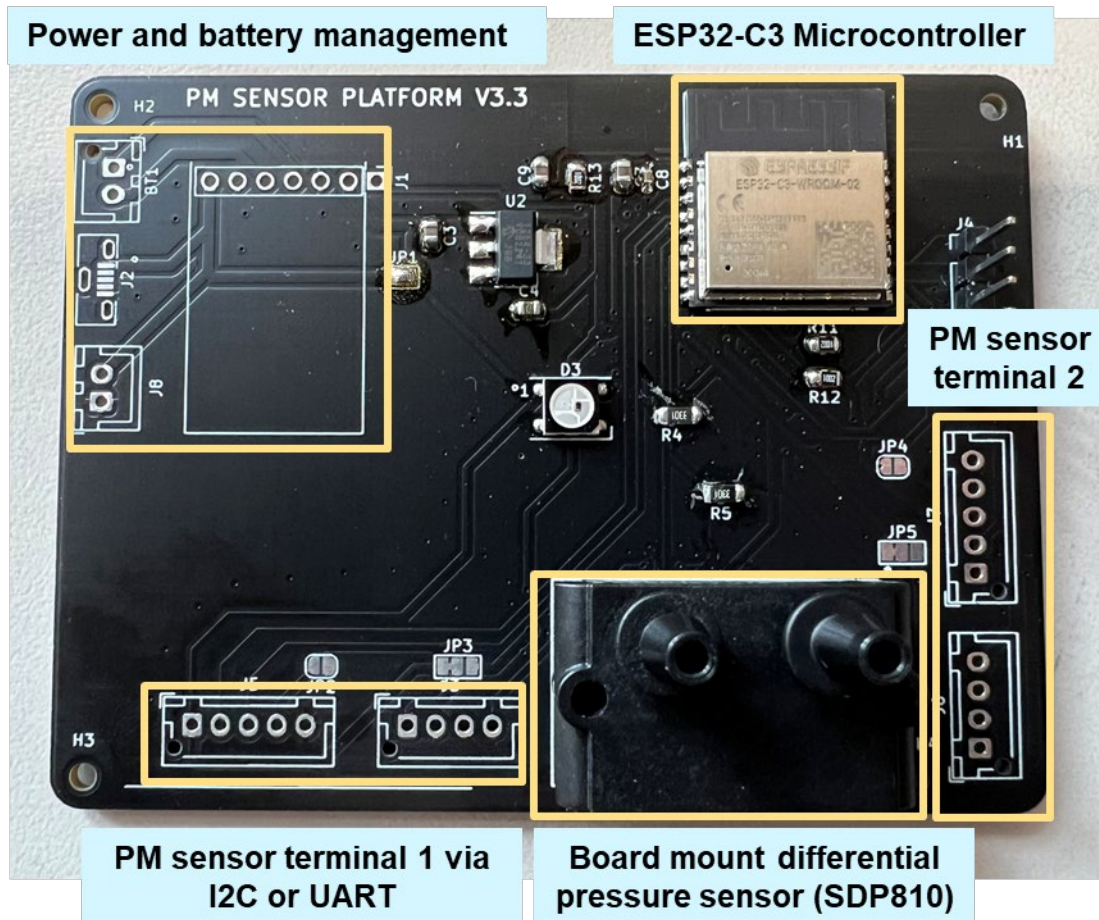


Fig S2. The printed circuit board design for the second-generation filter monitor system. It was developed based on the layout presented in Fig 1S and is currently undergoing further refinement.

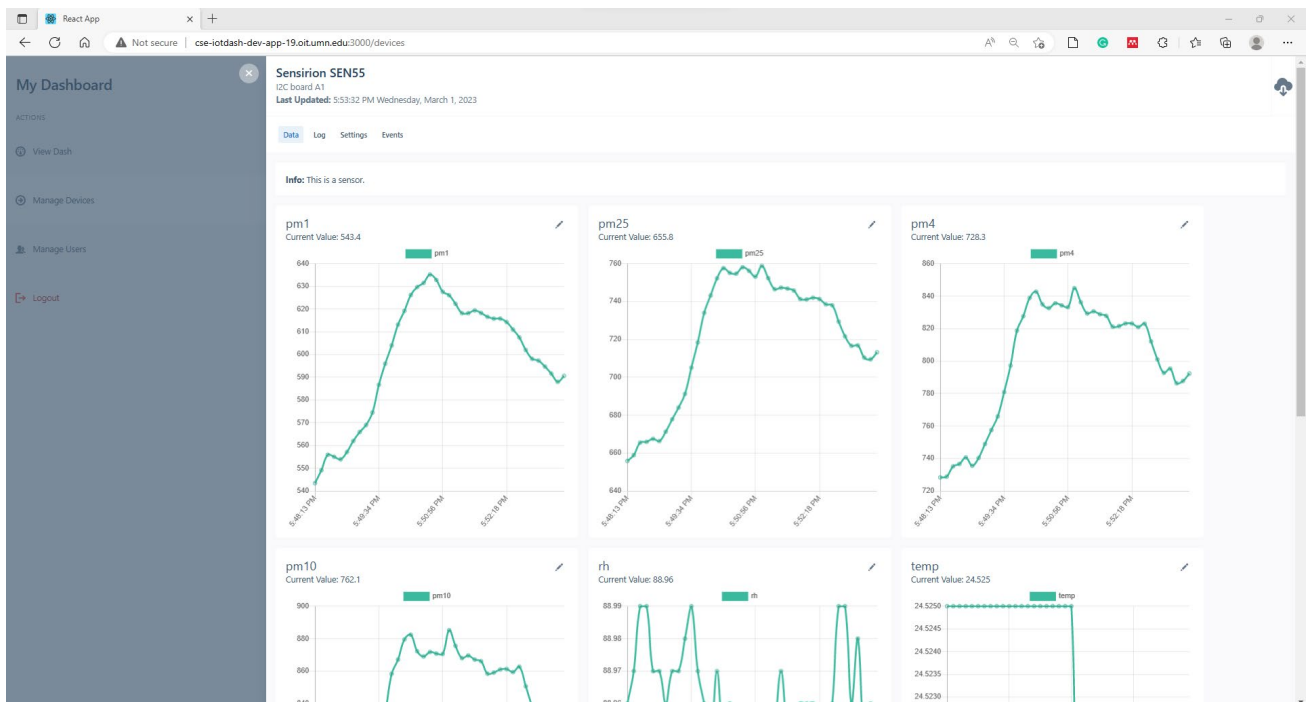
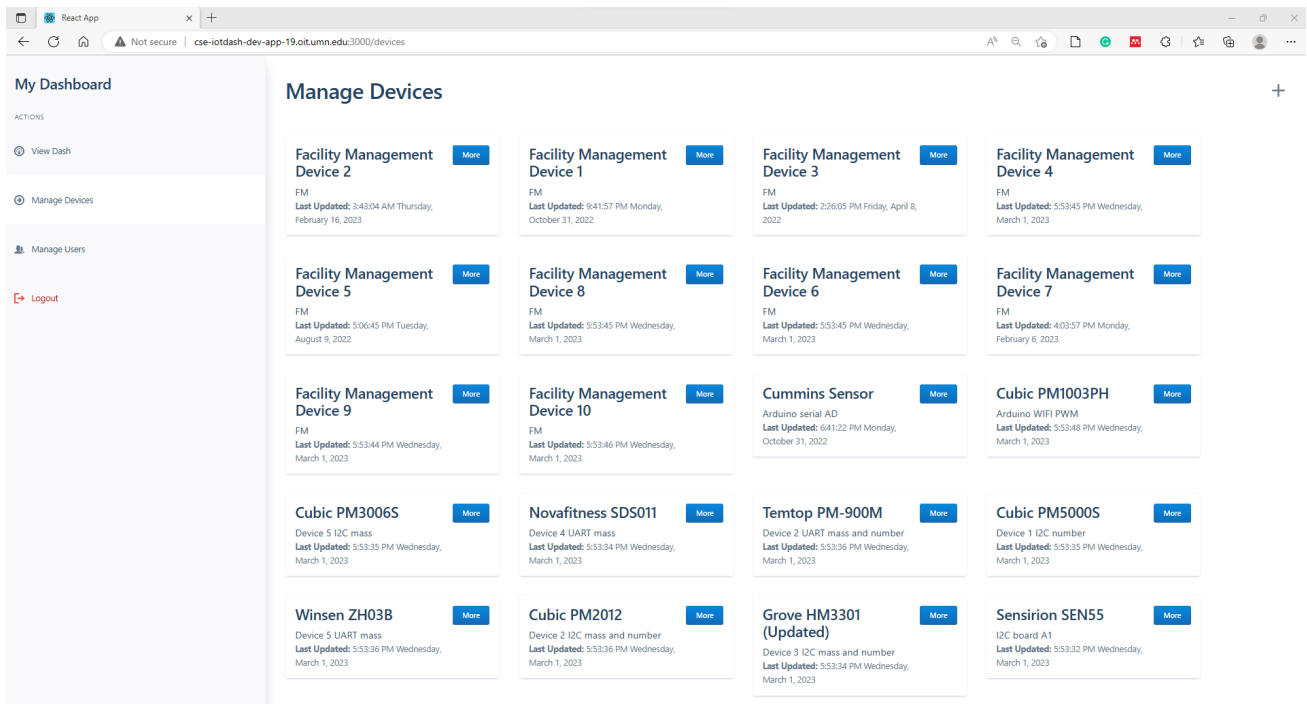


Fig S3. Sensor website for the second-generation filter monitor system, developed in React and designed to facilitate message exchange using Mosquitto, an open-source message broker that implements the MQTT (Message Queuing Telemetry Transport) protocol. The top illustration displays the array of PM sensors that were tested and integrated with the website for communication purposes. The lower illustration depicts the data acquisition process from an individual sensor. Further website functionalities are currently being developed.