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Activity Report

Implementation of AQI- Air Quality Index meters in cites through Industrial partners

Summery

The invention provides an air quality display method and an air quality display device. The method comprises the steps of obtaining air quality data and device identification of an air detector from the air detector; obtaining a corresponding monitoring scene map and installation position information corresponding to the air detector according to the device identification; labeling the air quality data on the monitoring scene map according to the installation position information; and displaying the monitoring scene map after the air quality data is labeled. The air quality data detected by the air detector is labeled on the monitoring scene map and then the monitoring scene map is displayed, so that a user does not need to remember the installation position of the air detector by virtue of memory, the air quality of a detected area corresponding to the air detector can be intuitively seen from the monitoring scene map, and the air quality can be displayed more simply and intuitively.

Detailed Description

The AQI- Air Quality Index meters and display units comprises three air quality detectors, a data communication component and an air quality displaying unit. The air detectors are the most advanced electrochemical sensors at present, each air detector is provided with an independent operational amplifier chip, and the air detectors can simultaneously support the measurement of environmental parameters such as PM2.5, PM10, AQI, temperature, humidity and the like. An independent operational amplifier chip configured in the air detector is a high-multiple programmable operational amplifier circuit, and can amplify a weak signal detected by the air detector to a range capable of AD acquisition. The data communication component transmits the data detected by the air detector to the air quality display unit through a Wi-Fi (wireless fidelity) communication networking technology and an MQTT (Message queue Telemetry Transport)

protocol technology of the Internet of things. The execution main body of the embodiment of the invention is an air quality display unit, and the air quality display unit is a terminal with a display screen and is used for displaying data detected by the air detector. When the data are displayed, the air quality display unit is combined with the map of the detection area corresponding to the air detector to display the air quality, so that a user can visually see the air quality condition of the detection area from the map, and the display of the air quality is simpler and more visual.

The method specifically includes the following steps:

- Step 1: air quality data and a device identification of the air detector are obtained from the air detector. The air detectors are arranged at preset positions in a monitoring scene, each air detector is provided with a corresponding detection area, and the air detectors detect the air quality in the corresponding detection areas to obtain air quality data. The air quality data includes the concentration of PM2.5, PM10, AQI, and other gases, as well as the temperature and humidity within the detection area. The air quality display unit acquires air quality data and equipment identification of the air detector from the air detector every preset time. In the embodiment of the invention, the air quality data and the equipment identification are transmitted from the air detector to the air quality display unit through the Wi-Fi communication technology and the MQTT protocol technology. The application of the Wi-Fi communication technology and the MQTT protocol technology enables the air quality detection and display system to form a low-cost Internet of things, so that the air quality display method provided by the embodiment of the invention can be widely applied to various business scenes and can also adapt to large-scale industrial production scenes. And the open MQTT protocol data transmission technology can adapt to the integration of various service systems.
- Step 2: Acquiring a corresponding monitoring scene map and installation position information corresponding to the air detector according to the equipment identifier. An

air detector distribution is configured in advance in an air quality display unit, and a monitoring scene map of a monitoring scene, an equipment identifier of each air detector installed in the monitoring scene and installation position information of each air detector are stored in the air detector distribution relation table. After acquiring the air quality data and the equipment identifier from the air detector, the air quality display unit acquires a corresponding monitoring scene map and installation position information from the air detector distribution relation table shown in table 1 according to the equipment identifier.

- Step 3: According to the acquired installation position information, marking air quality data on the monitoring scene map. After the air quality display unit acquires a monitoring scene map and installation position information corresponding to the air detector, positioning a detection area corresponding to the air detector on the monitoring scene map according to the installation position information; and marking the acquired air quality data in the detection area on the monitoring scene map. The embodiment of the invention can also configure the range of the air quality data corresponding to different air quality grades in the air quality display unit, for example, three air quality grades of air quality excellent, air quality good and air quality difference are divided, the range of the air quality data corresponding to the air quality excellent is that the concentration of harmful substances such as PM2.5, and PM10 is lower than 50, the range of the air quality data corresponding to the air quality good is that the concentration of harmful substances such as PM2.5, and PM10 is between 50 and 150, and the range of the air quality data corresponding to the air quality difference is that the concentration of harmful substances such as PM2.5, and PM10 is higher than 150. While the air quality data are marked on the monitoring scene map, the air quality display unit can also determine the corresponding air quality grade from the corresponding relation between the pre-configured air quality grade and the range of the air quality data according to the

acquired air quality data; and marking the air quality grade at the installation position corresponding to the air detector on the monitoring scene map.

- Step 4: Displaying the monitoring scene map marked with the air quality data. The air quality display unit displays a monitoring scene map marked with air quality data on a screen. In the embodiment of the invention, besides displaying the monitoring scene map, the real scene plan of the detection area corresponding to the air detector can be loaded according to the installation position information corresponding to the air detector; and displaying the real scene plan in a preset area of the screen.

In the monitoring scene, a plurality of air detectors may be installed, and for each other air detector, the air quality data detected by each other air detector is respectively marked on the monitoring scene map according to the method provided by the embodiment of the invention, and the monitoring scene map displayed on the screen is updated in real time.

When the indoor and outdoor air quality is displayed, the monitoring scene map and the live-action plan of the detection area corresponding to the air detector are displayed. And the air quality data detected by each air detector installed in the monitoring scene are visually displayed in corresponding display colors, so that the air quality of the monitoring scene is simply and visually displayed.

The air quality data and the equipment identification of the air detector are obtained from the air detector; acquiring a corresponding monitoring scene map and installation position information corresponding to the air detector according to the equipment identifier; according to the installation position information, marking air quality data on a monitoring scene map; and displaying the monitoring scene map marked with the air quality data. The invention marks the air quality data detected by the air detector on the monitoring scene map, and then displays the monitoring scene map. Therefore, the user does not need to remember the installation position of the air detector by memory, the air quality of the detection area corresponding to the air detector

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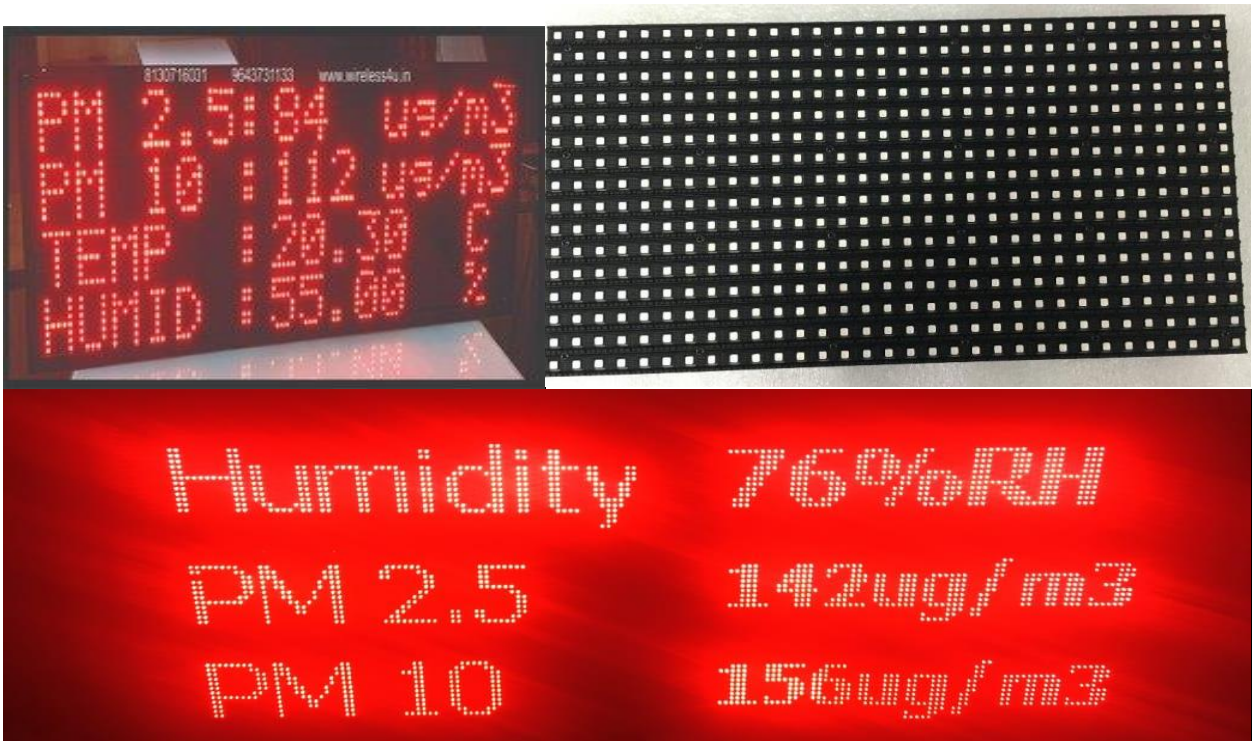
can be visually seen from the monitoring scene map, and the display of the air quality is simpler and more visual.



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