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Neusoft Environmental Protection Public Supervision System

Statement of Requirements

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1Introduction to Neusoft Environmental Protection Public Supervision System

1.1 Background of the project

Neusoft's environmental protection industrystartedin 2003. After years of accumulation, Neusoft's environmental protection industry solution system has been formed. Based on goals, needs, macro norms and standards, it comprehensively considersfactorssuch as IT infrastructure, operation and maintenance management, and security precautions. Build environmental informatization applications to solve environmental management business. Provide customers with safe, reliable, high-quality, and easily scalable environmental protection industry solutions.

Neusoft focuses on the field of environmental protection in my country and has built a Neusoft environmental protection industry line composed of senior comprehensive talents in the environmental protection and software fields. Through years of environmental informatization practice, it has served the national environmental protection department and gradually developed into a top software supplier in the industry, participating in Construction of large-scale projects such as national environmental statistics, emergency management, solid waste management, environmental monitoring data platform and ecological and environmental protection big data platform.

In the process of environmental informatization, we will give full play to our own advantages and provide services for environmental quality management (environmental quality monitoring, environmental quality early warning), ecological environment quality, pollution source management (environmental system, monitoring, total volume, transportation pollution sources), and environmental management business (monitoring, To provide information services for supervision, emergency response, solid waste, exhaust), and environmental government affairs management, Neusoft has developed an environmental reporting cloud platform, using big data technology and"Internet+" construction ideas to build an environmental big data application platform with multi-channel data integration.

The purpose of this document is to elaborate on the software requirements of the "Neusoft Environmental Protection Public Supervision System", and to clarify the development scope of the environmental protection public supervision business, so as to serve as a requirements guidance document for the subsequent development and design phase, and provide assistance for the outline design and detailed design of system development. . Through this document, developers can initially arrange the project schedule.

1.2 System Overview

Neusoft EnvironmentalProtectionCloud NEP(NeusoftEnvironmental Protection) serves three core platforms: environmental protection government supervision system, environmental protection enterprise service system, and environmental protection public supervision system.

This system is the Neusoft Environmental Protection Public Supervision System. This system is used to establish an environmental protection public supervision platform, broaden supervision channels, increase the transparency of environmental protection work, continuously improve the public supervision mechanism, and effectively enhance

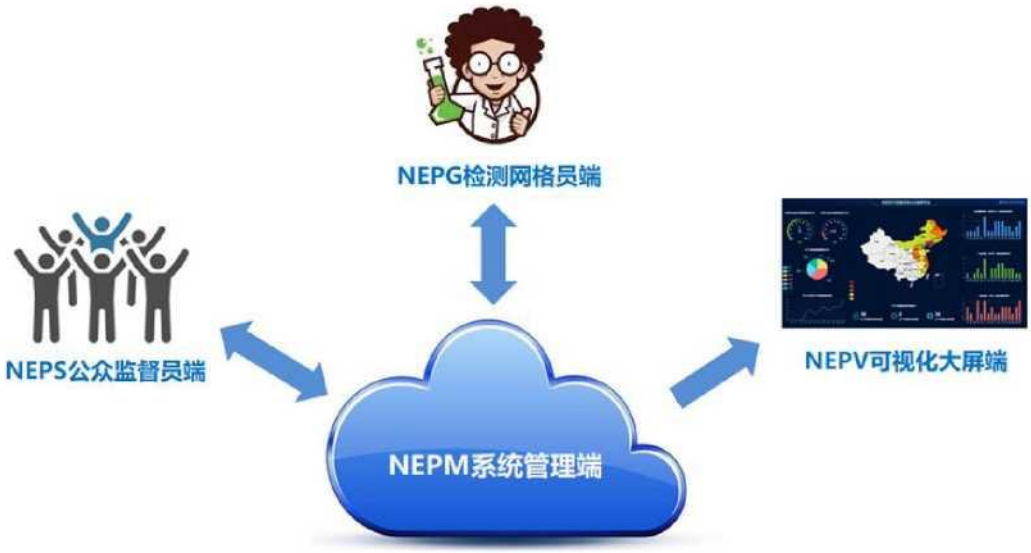
the effectiveness of environmental protection.

The main function of this system is to summarize the air quality information provided by public supervisors in different regions. The system administrator assigns this information to professional environmental inspection grid operators for on-site inspection and testing, thereby obtaining the air qualityAQIof different regions. (Air Quality Index) real-time data. These AQIdataare then collected into statistics, and the statistical results eventually become the basis for environmental protection decision-makers to make decisions.

Regions are managed using a grid. The smallest grid unit is a large city (alistof 106largecities will be released in 2022. Including7megacities, 14megacities,14 typeIcities,and71 typeIIcities). Priority will be given to provincial capital cities.

Users of this system are: public supervisors,AQIdetection grid operators, system administrators, and decision makers. This system is divided into four ends:

1.NEPSside:public supervisor side. User: Public Watchdog.
2.NEPGend:AQIdetectiongrid operator end. User: AQIdetectiongrid operator.
3.NEPMside:system management side. User: System Administrator.
4.NEPVend:large-screen visualization end. User: decision maker.



1.3 Appendix:AQIrelated data

AQI(AirQualityIndex) describes how clean or polluted the air is. Itisanewair quality evaluation standard released by the country in March 2012. The pollutant monitoring items are: airborne particulate matterPM2.5,sulfur dioxide, carbon monoxide and other major indicators.

This system uses "Air Quality IndexAQI"as the data basis for public environmental supervision.

Air quality index(AQI)range and corresponding category table:

Reference original data: "Air Quality Index (AQI)Rangeand Corresponding Category Table.xlsx"

二、 Air quality index(AQI)and corresponding pollutant project concentration

limit table:

Reference original data: "Air Quality Index(AQI)and corresponding pollutant project concentration limit table.xlsx"

三、 **Air quality indexAQIcalculation:**

AQI = MAX (SO2AQI, COAQI, PM2.5AQI)

1.4System environment

1.4.1Development environment

database	Use language or technology	MySql
	development tools	MySql Navicat Lite for MySQL
Front-end engineering	Use language or technology	Vue3+ Vue-cli Axios Element-plus font-awesome
	development tools	NPM Visual Studio Code
Server side engineering	Use language or technology	SpringBoot MyBatis-plus
	development tools	Maven SpringToolSuite4+

1.4.2Operating environment

database server	**Host type**	**Private deployment/cloud server X64**
Configuration information	Hardware Configuration	CPU: 16Core 3.0GHz or above RISC CPU or 4* Intel E7-4850V4 (16Core, 40M Cache, 2. 1GHz) and above
		Memory: 256GB
		Internal hard drive: 2*600GB RAID1
		Network: Gigabit
	software	Operating system: Linux CentOS 7
		Database: mysql
application server	**Host type**	**Private deployment/cloud server X64**
Configuration information	Hardware Configuration	CPU:1 Core CPU
		Memory: 2G
		Internal hard drive: 40GB
		Network: 2M
	software	Operating system: Linux CentOS 7
Browser environment	**Host type**	**Personal PC X64**
Configuration information	Hardware Configuration	cpu:8 core
		Memory: 8G
		Network: External network speed above 1M
	software	Firefox, Google Chrome
		Operating system: window10 x64

1.5Demand research

1.5.1 NEPSPublic Monitor Side Requirements

Function	describe
register	Anyone with Chinese citizenship can register through the“NEPSPublic Supervisor Terminal” program and obtain public supervisor status. Registration information at least includes: mobile phone number (unique identification), login password, real name (for ease of contact), age, and gender.
Log in	Use the mobile phone number and login password in the registration information to log in. The purpose is to identify responders of air quality monitoring information.
Select grid address	Public supervisors must choose a grid area, that is, a province or city. And fill in the specific address of the observation.
Submit air quality monitoring information	Public supervisors must estimate the AQI level in theirgridarea based on the "Air Quality Index (AQI) Range and Corresponding CategoryTable"and fill in the observed air quality description information.
Browse the list of historical feedback information	Public supervisors can browse the historical information of their own feedback. Including: time, region, estimatedAQIlevel.

1.5.2 NEPGgrid operator terminal requirements

Function	describe
Log in	Grid operators entertheirlogin code and password to log in through the "NEPS Grid Operator Terminal" program. Appendix: Grid members are company employees and cannot register themselves. Grid operator management is manageduniformlyby the "Neusoft HR System".
Browse the feedback tasks assigned to you business information	You must be able to browse the feedback task list assigned to you (public supervisors feedback information, and then the system administrator assigns the feedback information to the corresponding grid operators). The information in the list includes: grid address and estimated level.
	Also be able to browse the details of all feedback tasks in the list.

Enter measuredAQIdata	The grid operator selects a feedback task and after arriving at the grid area based on the task information, Conductfieldtesting of AQI data. Test content must include: > SO2sulfur dioxideAQIconcentration level > COsulfur dioxideAQIconcentration level > PM2.5suspended particulate matterAQIconcentration level
Submit measuredAQIdata	Basedonthe measureddataof SO2 sulfurdioxideAQI concentrationlevel,CO sulfur dioxideAQIconcentration level, andPM2.5suspended particulate matter AQI concentration level, the AQI level data of the current gridareais finally obtained. Submit this data and the current feedback task is completed.

1.5.3 NEPMsystem manager requirements

Function		**describe**
Log in		The system administrator entershisor her login code and password to log in through the "NEPM System Management Terminal" program. Appendix: System administrators are company employees and cannot register themselves. System administrator management is managed uniformlybythe "Neusoft HR System".
main menu: Public Oversight Data Management	Public supervision data list	1. Browse the list of data fed back by public supervisors. 2. Query specific feedback data based on different conditions. 3. Browse the feedback data details. 4. Assign a grid member to the feedback data (in principle, it is better to Assign locally first): 1. Local assignment: If there is a working grid operator in the current grid area, then this feedback data is assigned to the local grid operator. 2. Off-site assignment: If the current grid area does not If there are working grid members, please report this

		The data is assigned to grid operators in other areas (nearby arrangement). Appendix: Whether the grid operator is in working status is manageduniformlyby the "Neusoft HR System".
	ConfirmAQIdata list	1. Browse the AQI data listsubmittedby grid members. 2. Query specific submitted data based on different conditions. 3. Browse the detailsofsubmitted AQI data.
main menu: Statistical data management	Provincial group inspection statistics	Group the provinces into groups and count the cumulative number of AQIexceedancesin each province. Quantity, including: ACumulativenumber of SO2 sulfur dioxide concentrations exceeding the standard ACOCumulative number of carbon monoxide concentrations exceeding the standard AThecumulative number of PM2.5 suspended particulate matter concentrations exceeding the standard AThecumulative number of AQI concentration levels exceeding the standard
	AQIindex distribution statistics	Based on all AQIdataacross the country,theAQI index levels are grouped and the cumulative number ofAQIexceedances at each level is calculated.
	AQIindex trend statistics	Based onthecumulative number of national AQI exceedancespermonth within the current 12 months.
	Air quality testing quantity time statistics	Acounts thecumulativenumber of all AQI tests. ACount thecumulativenumber of good AQI test results. ACount the cumulativenumberof all AQI test results exceeding the standard.
	National grid coverage statistics	A.Statistics on the coverage rate of the grid areas currently using this system in all provinces across the country. A.Statistics on the coverage rate of the grid areas currently using this system in all major cities across the country.

1.5.4 NEPVdecision-maker needs

Function	describe
View statistics	Decision makers browsestatisticaldata through the "NEPM System Management Terminal" program, including:
	> Provincial grouping-cumulativenumberof SO2 sulfur dioxide concentration exceeding the standard > Provincial grouping-COCumulativenumber of carbon monoxide concentrations exceeding the standard > ProvincialGrouping-CumulativeNumber of PM2.5 Suspended Particulate Matter Concentration Exceeding Standards > Provincial grouping-cumulativenumberof AQI concentration levels exceeding the standard > AQIindex distribution statistics > AQIindex trend statistics > Real-time statistics on the number of air quality tests > National grid coverage statistics
Browse statistics on a large visual screen data	Decision makers usethe"NEPV Decision Maker Terminal" program and a large visual screen to Browse statistics including: > Provincial grouping-cumulativenumberof SO2 sulfur dioxide concentration exceeding the standard > Provincial grouping-COCumulativenumber of carbon monoxide concentrations exceeding the standard > ProvincialGrouping-CumulativeNumber of PM2.5 Suspended Particulate Matter Concentration Exceeding Standards > Provincial grouping-cumulativenumberof AQI concentration levels exceeding the standard > AQIindex distribution statistics > AQIindex trend statistics > Real-time statistics on the number of air quality tests > National grid coverage statistics