

IoT-based Environmental Data News Generation System for Healthcare

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Abstract—This paper designs and develops an Environmental Data News Generation (EDNG) system of Internet of things data acquisition and generation that can automatically collect data such as environmental temperature, humidity and light intensity in a region and automate broadcast by data news for healthcare. The system is based on digital data collection, Internet of things, embedded development and other technologies. Through designing hardware and software such as the design of networking data acquisition devices, the establishment of cloud forwarding servers, the development of terminal WeChat mini-programs and data news acquisition systems, the problem of automatic data collection, fusion generation and accurate and efficient reporting of regional environmental data news is solved. At the same time, through the research of regional environmental data news gathering and generation technology, the functions of automation of environmental data collection and real evolution of news broadcast were realized. The accuracy of data acquisition and the speed of news reporting are improved, and an effective strategy is provided for the automatic generation of other data news.

Keywords—data news, automatic generation, environment, Internet of things, healthcare, WeChat mini-programs

I. INTRODUCTION

Since the 21st century, climate change, ecological destruction and environmental pollution have become important issues of concern to the government and the media. Since the 18th session of National Congress of the CPC, the China President Xi Jinping has drummed in that we need to "implement the strictest environmental protection system" and "effectively solve outstanding environmental problems affecting the health of the people." At the press conference of the second session of the 13th national committee of the Chinese people's political Consultative conference (CPPCC) this year, Conference spokesman Guo Weimin also said: "Environmental governance is conducive to fairness of health, transformation and upgrading. If we want to promote high-quality development, we must firmly promote environmental governance." The environmental condition has very big influence to human health. There is a research indicating that among the influence health reason, the environmental factor accounts for 20%, the life style accounts for 50%.[1] So the importance of environmental news is rising.

Environment and healthcare are common problems facing mankind in the 21st century. China is facing major challenges in environmental and healthcare issues (such as global climate change, ecological environment destruction and environmental quality deterioration). In recent years, the

damage to human health caused by environmental pollution has become more and more prominent. It not only poses a threat to people's physical health, but also does harm to people's mental health caused by long-term environmental problems. The attention to environment and tracking report can make audience pay more attention to health problems, also is advantageous to the healthcare industry and sustainable development.

According to the 43rd Statistics Report on Internet Development in China released by CNNIC, as of December 2018, China's Internet users reached 829 million, and the Internet penetration rate was 59.6%. New media technology is developing rapidly. Any technology will create a completely new human environment, Marshall McLuhan once said. Today, data has become one of the most important resources. From life to economics to politics, people in data dependencies are increasing. And people are also producing data. The application of big data has become extremely important in every field.

Big data technology has brought about great changes in the field of news communication, and also provided new opportunities for news reporting. Data news was born in the background of the rapid development of big data technology and new media technology and it improves the accuracy of news transmission. In this context, accurate and efficient environmental data news emerged.

This paper will analyze the existing problems of environmental data news and solve the problems of automatic data collection and news generation. And through the application of Internet of things technology, NB-IoT technology, WeChat mini-programs and other applications, this paper puts forward the design and implementation of a regional Environmental Data News Generation(EDNG) system based on the Internet of things technology.

II. RESEARCH ISSUES

A. Data news

Data news originated in the field of news practice in recent years. Western independent news organizations or mainstream newspapers, such as ProPublica, have set up special teams to design new news applications. And they used various technical software to capture, process, analyze and visualize data.

Data display, including visual data maps, interactive charts and online presentations, opens the first page of the data news practice. Now traditional media, new websites and independent news organizations all of the world are gradually

accepting the concept of "data news" and trying to practice it.[2]

At present, data news is divided into two basic models--"niche model" and "analogy model". The "niche model" mainly uses data mining and other technologies to process the data and turn it into customized news that can meet the needs of various audiences. "Analogy model" refers to the use of quantitative, qualitative and other social science research methods. According to the theme to determine the relevant "variables", these "variables" mine the relevant data of different categories and levels, enabling the audience to conduct horizontal or vertical analysis through visual and interactive means [3]. This article will be based on this model to study data acquisition technology of data news, data cloud forwarding technology and visual presentation technology for client audiences. With this study, this research will analyze the data news mode to develop an integrated regional news generation system..

B. Status of development of environmental data news

Human beings live in the natural environment, and the environment is the basis for human survival. With the deterioration of environmental problems, human health is also under greater threat. The President Xi Jinping stressed at the National Ecological Environment Protection Conference that the construction of ecological civilization is the fundamental plan for the sustainable development of China. The human condition has come to a critical point. As an organ of society, media must constantly alert the readers through news reports. That is to say, media plays an early warning function of healthcare problems through the broadcast of environmental information by using words and data.

Data collection and data processing of data news is the focus of research on data news generation technology. Finding information on Web is a difficult and challenging task because of the extremely large volume of data. Search engine can be used to facilitate this task, but it is still difficult to cover all the webpages present on Web.[4]However, with the development of data collection technology, it is found that data collection can be achieved automatically by using the most advanced "network crawler" technology[5]. Web crawlers actually capture relevant web resource applications through orientation. For example, many web sites now collect real-time information on weather networks using web crawler technology[6].It is an effective means of collecting regional environmental data by crawling the weather data of a city and the weather data of a week in the later forecast to its own website. However, due to difficulties in the acquisition of equipment and resources for real-time database technology, access to more accurate data information (such as a district or sports field in a city), there are still a lot of problems. In addition, reporters cannot obtain real time environmental data from all over the world at any time and place through the mobile end, which has a great impact on the efficiency of the production of environmental news reports.

The introduction of data technology in environmental news can enhance the objectivity and accuracy of news. EDNG system allows reporters to obtain real-time data and historical data graphs for each fixed point environment monitoring through WeChat mini-programs. It is also possible for the environmental news writing robot to obtain environmental monitoring data in real time for each point, and to present visual news of the natural environment in the shortest time. This makes the production efficiency of the

natural environment data news greatly improved, and readers can not only get the environmental data of the large areas in which they live, but also know the environmental conditions of the specific locations in real time such as temperature, weather, light intensity, pollution and so on. It plays a role in providing readers with the latest environmental information, prediction and prevention of natural disasters, warning the public to protect the ecological environment and so on.

C. Problems with environmental data news

In recent years, data news has been mixed with various kinds of news, and environmental news is no exception. Environmental data news has changed the way of presenting environmental news in the past. It presents the latest information about the natural environment to readers through vivid narration, and forecasts the unknown situations such as natural disasters. However, the number of environmental data news accounts for less than that of all data news, mainly because of the scarcity of environmental news data sources and the need to improve the technology and concept of data news itself.

The production process of data news includes data collection, analysis and visual presentation, among which the environment of data collection is very important and the guarantee of the quality of data news works. At present, the access channels of environmental data news are mainly government (government institutions), enterprises (related private enterprises), academic institutions (institutions of higher learning) and social organizations (public welfare institutions, various associations, non-governmental organizations), third-party information service providers (data service providers), network data (application of computer technology mining related data) and other media [7].It can be seen from access that data is often not primary data. The data collection of environmental data news is inefficient, and the information is likely to be delayed, insufficient and heavily dependent on text information. These deficiencies can lead to poor quality of data news, lack of depth mining, and cannot do one of the functions of environmental data news--predict unknown weather or natural disasters.

III. REGIONAL ENVIRONMENTAL DATA NEWS GENERATION SYSTEM

EDNG system mainly uses mobile interconnectivity transmission technology such as Internet of things, digital data collection, NB-IoT, embedded development and so on, and it introduces fixed point data acquisition module and WeChat mini-programs. Based on these technologies, EDNG system was designed and developed. The operation process of the system shows in Fig. 1. It visualizes data representation in WeChat mini-programs by data acquisition and processing of the fixed point data acquisition module so that it improves the efficiency of environmental data journalists, reporters can access the natural environment information in real time and in a short time publish visual data news.

A. Data acquisition

1) The technical basis of data collection

Nowadays, the data of data news are mainly secondary data. In order to improve the efficiency of data collection, data collection can be achieved automatically by means of Internet of things and other technologies.

The emergence of the Internet has brought infinite convenience to people's lives, and it has greatly saved people's

time and energy. But the development of information technology is explosive, simple Internet connectivity has been difficult to meet people's higher needs. The Internet of things came into being in this context. The Internet of things is the result of the further development of the Internet. It uses such technologies as ZigBee, RFID technology and NB-IoT technology and constructs an Internet of physical objects that can be shared. The Internet of things is the third information revolution after computers and cloud computing. It has brand-new technology, at the same time, the economic benefit that can bring is also very considerable. The emergence of the Internet of things can not only provide technical support for global economic development, but also increase economic cost savings, thus providing economic benefits and greatly saving costs. The Internet of things can perform ordinary functions, such as sensing information from the surrounding environment. Moreover, considering the limited resources of the Internet of things service and the dynamics of the environment, the Internet of things can make optimal decisions without human or minimum human intervention.^[8] With the application of Internet of things technology, remote data acquisition system can be designed in a relatively simple way.

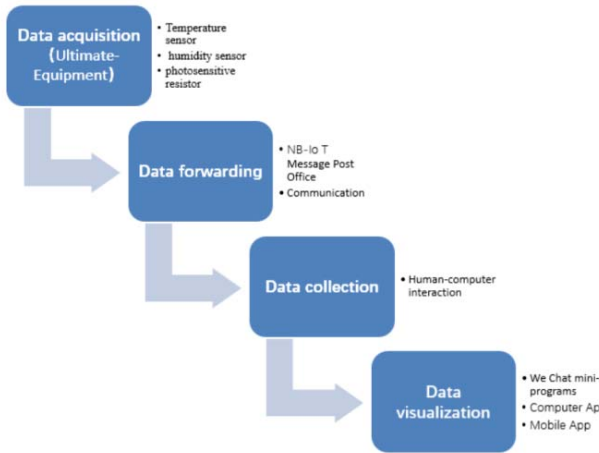


Fig. 1 The operation process of the EDNG system
As shown in Fig. 2, the industrial chain of the Internet of things can be divided into upstream, midstream and downstream.

- Upstream: The industry includes chip production, sensors and access devices. The operators mainly equipment suppliers and providers of communication module, etc.
- Midstream: It mainly composed of the communications network operation industry and the platform operation industry. Among them, the telecommunications network operation industry mainly includes telecom network operators, radio and television network operators, Internet operators and so on. Platform operation industry mainly includes equipment management platform, connection management platform, application development platform, system and software development platform.
- Downstream: It is the relevant application industry of the Internet of things, including intelligent terminal

providers, middleware and application developers, system integrators, operations and service providers.^[9]

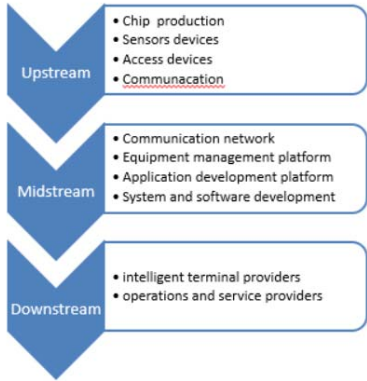


Fig. 2 The industrial chain of the Internet of things

2) Design of data automatic collection module

The data collection of EDNG system is mainly implemented through the fixed point data acquisition module, which mainly monitors and collects data information most needed by environmental journalists such as weather conditions, light intensity, pollution levels, etc. This module is mainly composed of master controller, analog sensor group, etc. This system is programmed through C language. The whole process is shown in Fig. 3.

The development of hardware mainly uses the development kit of the Soochow University, which is composed of the AHL-IoT kit, the extending baseplate, the SWD interface and the TTL-USB serial port line, etc.

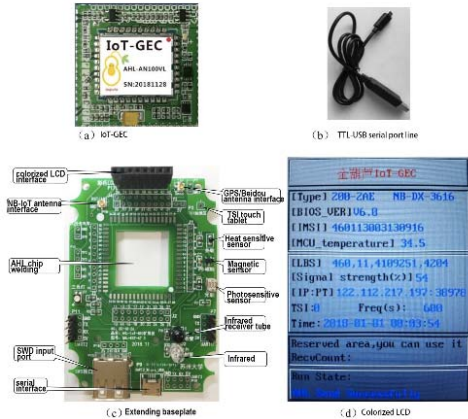


Fig. 3 The whole hardware assembly process

At present, we have a preliminary design scheme for the remote data acquisition system. The development hardware mainly uses AHL-IoT development kit, which consists of AHL-IoT sleeve chip, expansion baseplate, SWD writer, TTL-USB serial port line and other parts. The AHL-IoT chip consists of KL36 microcontroller with 32-bit ARM Cortex-M0-kernel, IoT communication module, tricolor lamp, SWD writer interface, TTL serial port (UART0, UART2) and two rows of external interface. CPU working frequency is 48MHz; Operating voltage is 1.71v ~ 3.6v; Operating temperature range of 40 °C ~ 105 °C; Internal RAM is 8KB, internal Flash is 64KB; With GPIO, UART, 16 bit ADC, Flash, touch -

sensitive interface TSI, 12 c, 12 - bit DAC and some other modules.

Software KDS(Kinetis Design Studio) is an embedded integrated development environment of Kinetis series microcontroller for ARM cortex-m core launched by NXP in 2014. It has functions of editing, compiling, downloading program, debugging, etc. During the design process of EDNG system, LCD module was added to the extended base plate of AHL-IoT development suite to display the status of the jacket, photosensitive resistor was used for AD sampling, and TSI key was used for interactive control. Under the control of timer, if the whole system runs normally, the terminal UE (Ultimate-Equipment, UE) will send a frame of data to the user server US on a regular basis. The user server US will receive the frame data in about 30 seconds.

Initialization includes routing group initialization, flash module initialization, specified port pin initialization, LCD module initialization, LPTMR module initialization, interrupt module initialization, TSI module initialization and serial port initialization. At the same time, the initialization process initializes the configuration of some modules, such as clock source configuration and initial electrical equality of pins. EDNG system initialization process is shown in Fig.4.

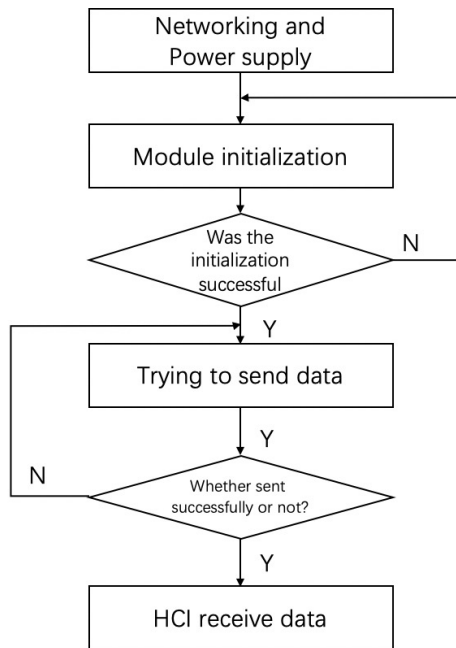


Fig. 4EDNG system initialization process

The parameters for successful communication of communication modules that dominate the system are required as shown in table I.

TABLE I. PARAMETERS REQUIRED BY THE COMMUNICATION MODULE

<i>parameter</i>	<i>Baud rate</i>	<i>Voltage range</i>	<i>Signal strength</i>
value	9600	3.1V~4.2V	20%

When the communication module is initialized, it needs to be entered with the IP address and port number of the management server.

Since the LCD on the extended sleeve can reflect the data transmission status of the AHL-IoT suite in real time, after initializing the LCD module, it will output the corresponding running status according to the running state of the system. This mode requires serial communication with a baud rate of 115200. During the operation of the main loop, the operator can set the period of data automatic transmission. For the convenience of testing, the AHL-IoT suite also designed a manual trigger device. When the touch button is pressed, the LCD displays the number of TSI touches. If the number of touches is a multiple of 3, the IoT communication module will send data to HCI through the Message Post Office and wait for the return data to be received.

The prompt information for LCD output is as shown in table II:

TABLE II. THE PROMPT INFORMATION FOR LCD OUTPUT

<i>Prompt information</i>	<i>meaning</i>	<i>note</i>
H0-XX.X	displaying current device temperature	XX.Xis the current temperature (one decimal point)
H1-1001	Prompting the UE module to initialize	UE initialization fails and ends without entering the send operation
H1-1002	Prompting the UE module to initialize successfully and enter frame operation	
H1-XX	Displaying the current signal strength	XX is the current signal strength
H1-1003	Prompting the UE module to enter the send operation	UE fails to send and exits directly
H1-1004	Prompting data sent successfully	
F1-10XX	Prompting UE module initialization failed	XXis the UE module initialization failure return error location
F1-20XX	Prompting UE module failed to send data	XX is the UE module sending a failure to return an error location
F1-30XX	Prompting UE module failed to receive data	XX is the UE module receiving a failure to return an error location
E1-X	Prompting TSI for the number of touches	XIs the number of TSI touches

The data transmission process of EDNG system is a complete cycle. When the terminal module initialization is completed, the terminal will immediately try to send data. However, this usually requires the signal strength of the entire communication module at 20%. Otherwise, the whole system will send a failure signal when the data is sent. After the delay, the data will be sent to the next round until a complete data transmission is completed.

Under the premise that the UE end can work normally, the HCI end receives the data packaged and transmitted by the UE end for processing, and performs a series of functions such as frame unwrapping, packet allocation according to

different data, display and storage, etc.. Meanwhile, HCI terminal has the function of sending back data. Similar to the process of receiving data, the postback data is also reframed before being sent. HCI side storage before each frame of data database has the function of query and clear, through the button Click event to achieve.

B. Data forwarding

1) NB-IoT Message Post Office (MPO)

The process of data transmission from the terminal to the human-computer interaction system for data reception needs to be processed and forwarded by the NB-IoT Message Post Office (MPO), which plays a role of information transmission in the terminal and human-computer interaction system. MPO consists of NB-IoT base station and NB-IoT Management Server (MS). The NB-IoT base station is responsible for the reception and transmission processing of mobile signals. Management server MS is a cloud server with a fixed IP address and port. UE sends a message to MS. MS provide forwarding functions, to forward the information to the human-computer interaction system, namely the system of computer and smart phone.

2) Design of Message Post Office (MPO)

The terminal sends data to a fixed IP address and port. The user listens to this fixed IP and port and collects and stores the data in real time whenever it is sent. Since NB-IoT communication is a low-power transmission process, its UE can only be awakened by timer, switch input, touch button interrupt and other methods when it is in sleep state. After the terminal UE is awakened, NB-IoT communication is initiated and data is transmitted to the HCI through MPO. Upon receipt of the data, HCI shall immediately analyze and process the data that needs to be returned to UE through MPO. A complete communication is not completed until the UE receives it.

In MPO, a managed server receives a connection between the terminal UE and the user server (US) on the human-computer interface side, Each frame of the UE and US signal sent to the management server contains an IMSI code that the management server communicates with the UE and US based on the IMSI code.

There is an address map in the management server MS:
Private class Mapping Private mooning

```
{
    Public string IMSI;//terminal IMSI code
    Public Socket UESocket;//connected to UE
    Public Socket USSocket;//Connect with US
}
```

When UE sends a frame of data to MS, MS will update the connection between UE and the corresponding IMSI code line in the address mapping table as the connection and forward this frame of data to the corresponding connection with US. Similarly, whenever US sends a frame of data to MS, MS will update the US connection of the corresponding IMSI code line in the table to be that connection and forward this frame of data to the corresponding connection with UE. [10]

C. Data receipt

1) A simulation test of environmental monitoring based on NB-IoT

The design of EDNG system is fully in line with the low bit design of NB-IoT, so the related terminal suite can be placed in the place where the network signal is poor or a place where remote monitoring systems such as GPS are unable to feedback information data in time. Since all terminals have corresponding Numbers, the real-time status of the terminal can be monitored at the HCI end by calling the IMSI code of the terminal suite to be monitored. The terminal can feedback different data types according to different environments. If the corresponding data is to be called, the required data can be obtained successfully only by initializing the corresponding module. The module that can be initialized is related to the chip on the terminal suite. After defining the corresponding pins and serial ports, the network strength required for data transmission can be achieved at the terminal. When there is a need for data, the terminal automatically initializes and then transmits the data.

Under the same geographical conditions, simulated monitoring is carried out in different environments, and the temperature, weather and other data are judged by the light intensity and data fed back from the UE end, so as to achieve the purpose of remote monitoring. The HCI user monitoring interface of the system is shown in Fig. 5, and the newly added database interface is shown in Fig. 6.

command 00	frame number 5	IMSIcode 00004365050008
serverIP 97.101.193.53	serverPort 20122	currentTime 2018/7/1 9:25:08
resetCount 5	send#sequence 600	userName 17
version 1007	equip#name {golden good} {cscwsk}	equipID 110000-000000-00001
equipType 000-1-07-000	vendor ve	scutlen 20.0
rework1	phone 13000000000	IMEIcode 001202020053960
signalPower 54	bright 43081	TSTtime 0
rework2	LBS location 655,000,57ha,0P	

Fig. 5 HCI user monitoring interface of EDNG system

Real time	Date	Inquire	Cancel	createTime	IMSI	frameNum	userName	softVer	product	product	product	vendor	sendTime	MCUtemp	basic001	mc
2018/7/1	2018/7/1	46000...		2018/7/1	46000...	8	shr2018	V1.0	GPRES...	GPRES...	GPRES...	ZJIC...	2018/...	314	15	
2018/7/1	2018/7/1	46000...		2018/7/1	46000...	7	shr2018	V1.0	GPRES...	GPRES...	GPRES...	ZJIC...	2018/...	314	15	
2018/7/1	2018/7/1	46000...		2018/7/1	46000...	6	shr2018	V1.0	GPRES...	GPRES...	GPRES...	ZJIC...	2018/...	314	15	
2018/7/1	2018/7/1	46000...		2018/7/1	46000...	5	shr2018	V1.0	GPRES...	GPRES...	GPRES...	ZJIC...	2018/...	314	15	
2018/7/1	2018/7/1	46000...		2018/7/1	46000...	4	shr2018	V1.0	GPRES...	GPRES...	GPRES...	ZJIC...	2018/...	313	15	
2018/7/1	2018/7/1	46000...		2018/7/1	46000...	3	shr2018	V1.0	GPRES...	GPRES...	GPRES...	ZJIC...	2018/...	313	15	
2018/7/1	2018/7/1	46000...		2018/7/1	46000...	1	shr2018	V1.0	GPRES...	GPRES...	GPRES...	ZJIC...	2018/...	312	15	
2018/7/1	2018/7/1	46000...		2018/7/1	46000...	0	shr2018	V1.0	GPRES...	GPRES...	GPRES...	ZJIC...	2018/...	313	15	
2018/7/1	2018/7/1	46000...		2018/7/1	46000...	43	shr2018	V1.0	GPRES...	GPRES...	GPRES...	ZJIC...	2018/...	313	15	
2018/7/1	2018/7/1	46000...		2018/7/1	46000...	42	shr2018	V1.0	GPRES...	GPRES...	GPRES...	ZJIC...	2018/...	312	15	
2018/7/1	2018/7/1	46000...		2018/7/1	46000...	41	shr2018	V1.0	GPRES...	GPRES...	GPRES...	ZJIC...	2018/...	313	15	
2018/7/1	2018/7/1	46000...		2018/7/1	46000...	40	shr2018	V1.0	GPRES...	GPRES...	GPRES...	ZJIC...	2018/...	313	15	
2018/7/1	2018/7/1	46000...		2018/7/1	46000...	39	shr2018	V1.0	GPRES...	GPRES...	GPRES...	ZJIC...	2018/...	313	15	
2018/7/1	2018/7/1	46000...		2018/7/1	46000...	38	shr2018	V1.0	GPRES...	GPRES...	GPRES...	ZJIC...	2018/...	312	15	
2018/7/1	2018/7/1	46000...		2018/7/1	46000...	37	shr2018	V1.0	GPRES...	GPRES...	GPRES...	ZJIC...	2018/...	313	15	

Fig. 6 The newly added database interface

The experiment of this study selected the school playground as the simulation point of environmental monitoring and carried out a simple environmental monitoring simulation. When the geographical location is similar, and the light intensity and various data changes, the data transmitted through the terminal can be compared to obtain the data changes in different weather conditions. This method is able to obtain meteorological information without personally arriving at the place where environmental data is needed, and then carry out data processing, visual presentation and data news editing.

2) Mobile end data reception

To make it easier for journalists to access and monitor data remotely at any time and at any time, the data receiving link of EDNG system is introduced into WeChat mini-programs. In mobile terminals, mobile apps need to be downloaded and

installed, and sometimes it needs upgrade and update to meet the needs of users which brings users a bad experience. WeChat, one of the most frequently used mobile apps for mobile phones, is an instant messaging tool that has more than 800 million monthly active users.[11] WeChat mini-programs launched by WeChat have the advantages that with no need to install and uninstall in addition to WeChat and it is very convenient through WeChat access and dissemination. So it is suitable for providing functional, and content and service-based applications.

WeChat mini-programs in WeChat platform only need to develop the front-end version, background can use any language for independent development. It has the advantages of low development cost, mature technology and so on. The front-end design mainly uses HTML/CSS /JS three-piece set. WeChat mini-programs use the "MINA" framework, which provides rich components and API for running WeChat mini-programs. EDNG system is connected to the remote data collection system through the development of WeChat mini-programs and the realization of data acquisition through WeChat mini-programs. The introduction of WeChat mini-programs to achieve data acquisition and visual presentation can help reporters to release data news via mobile. The procedure is to establish a new connection between the port and the IP address of the server, and send related link requests to the server by using the port number. When the connection is successful, WeChat will receive real-time monitoring data and historical data graphs. At the same time, the system also has a basic setup and design. It uses the port number to send related link requests to the server, if the connection is successful, WeChat mini-programs can receive real-time monitoring data and historical data curve(It shows in Fig. 7). Journalists can easily access data information on the mobile side and edit news in a timely manner.



Fig. 7 Real-time monitoring data

D. Visual presentation of data

1) Visual representation

Data visualization mainly refers to the use of knowledge of computer graphics and image processing technology,

using the graphical method, image processing, computer vision and interactive interface, through the way of analysis, transformation and graphics, animation, to visual description of the data, the data can be interactive graphic images by way of performance technology. Many programming languages can be used for data visualization, such as Python, PHP, JavaScript. WeChat mini-programs background program design can also be used for data visualization. Considering the aesthetics of data news and the simplicity of operation, EDNG system adopts ECharts, an excellent visualization library in China.

ECharts is a purely JavaScript database developed by the domestic Baidu front end data visualization team in 2013. It has a powerful chart interaction function and provides graphics that support arbitrary mixing, and users can freely combine charts into mixed maps. The official WeChat mini-programs team worked with the charts this year to provide a version of the WeChat mini-programs version of ECharts. Developers can quickly develop graphs and charts to meet visual needs through the familiar ECharts configuration.

2) Visual presentation design

EDNG system designed in this paper visualizes the data by inserting the components associated with the ECharts in the WeChat mini-programs that receives the data, generate data information pages that contain visual diagrams. The visual script reads the information obtained by the WeChat mini-programs and presents the visual diagram. News editors can access data and visual diagrams by WeChat mini-programs, and then combine them to send out data news.

IV. 6.CONCLUSION

This paper attempts to use an intelligent method to generate environmental data news using Internet of things technology, WeChat mini-programs and other technologies, and it designs a regional EDNG system. The system makes use of Internet of things, mobile Internet transmission and other technologies to innovate the way of data acquisition for environmental data journalism, and at the same time simplifies the process of reporters rushing to the scene to observe environmental information. It uses fixed-point data acquisition technology to make the scope of environmental monitoring, and improves the accuracy of news information acquisition of natural environmental data downsizing and accurate. At the same time, the system introduces the WeChat mini-programs, which enables the real-time acquisition of environmental monitoring data and curve graph by the mobile terminal, and innovates the step of obtaining data and generating data news by the reporter. Through the design of EDNG system, the generation mode of environmental data news is updated, which also provides a case for the data news generation mode of other fields. The research on remote data acquisition system in this study expands the application field of the Internet of things and with the news, the dissemination, the ecological environment and so on domain has carried on the intersection research.

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