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Retraction

Retracted: Intelligent Control System Design of Ring Light via IOT Mobile Robot

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope
(2) Discrepancies in the description of the research reported
(3) Discrepancies between the availability of data and the research described
(4) Inappropriate citations
(5) Incoherent, meaningless and/or irrelevant content included in the article
(6) Manipulated or compromised peer review

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] X. Kang and Y. Teng, "Intelligent Control System Design of Ring Light via IOT Mobile Robot," *Journal of Robotics*, vol. 2023, Article ID 4303194, 13 pages, 2023.

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Research Article

Intelligent Control System Design of Ring Light via IOT Mobile Robot

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In the Internet of Things (IoT) era, the combination of mobile robots and IoT technology has realized the complementary advantages of the IoT and robots, which has brought new challenges and opportunities for the development and application of the IoT and mobile robots. In this study, a mobile robot positioning system based on the wireless positioning technology of the IoT is first designed, and an adaptive federated filtering algorithm based on the confidence of the sensor measurement data is given, and the data fusion processing is carried out for the positioning system to achieve the accurate positioning of the mobile robot. Then, we embed the intelligent control system of the ring lamp and propose an adaptive fuzzy PI double closed loop equalization control strategy, which can automatically identify the number of interlaced parallel and ensure its equalization effect. The experimental results show that the equalization strategy designed in this study has a good equalization effect in the loop interleaving parallel topology, strong adaptive parameter adjustment ability, good robustness, and anti-interference.

1. Introduction

With the acceleration of urbanization and infrastructure construction in China, the market demand for lighting products is gradually expanding. Traditional lighting equipment has high energy consumption and is limited by its technical bottleneck, which is not intelligent enough in the control method, which not only causes the waste of nonrenewable energy use but also increases the investment of human and material resources [1]. Figure 1 shows a ring light used at home, which can be used to generate electricity by using solar energy. In recent years, due to the increasing awareness of energy conservation and environmental protection in China, the installation of ring lights in the industry has been growing, with about 735,000 ring lights installed in China in 2010, reaching 4,972,000 in 2018, which shows the rapid development of ring lights and indicates that the research on ring lights has good application prospects.

Mobile robots are intelligent robots that combine environmental information perception, autonomous task planning, intelligent task control and execution, and other capabilities that are highly autonomous in planning, organizing, and adapting and can operate in complex environments, greatly expanding the application areas of robots [2–4]. Mobile robots are also more and more widely used, because they have a high degree of autonomy, can complete many tasks that are difficult for human beings to complete in dangerous or other restrictive environments, and have gradually penetrated into all areas of human social life. To some extent, autonomy is similar to the concept of human autonomy. This concept emphasizes that "moral subjects can actively use their abilities in pursuit of goals." This concept emphasizes that in the process of pursuing goals, artificial systems or moral subjects can make choices. Therefore, the moral subject should at least have a mechanism to make decisions and display goals. If it is ideal, it is better to have display mechanisms indicating other goal states (such as desire and motivatio) and nongoal states (such as task display).

IoT is a kind of intelligent network to realize the interconnection of all things, which connects all objects to the Internet through information sensing devices such as radio

Figure 1: Ring lamp.

frequency identification and can realize intelligent identification, provide real-time online management, and service functions that are safe and controllable and even personalized and complete the integration of "management, control, and management" of "all things" [5]." The main feature of IoT is to obtain various information of the physical world by means of radio frequency identification and sensors, to transmit and interact with information by combining with networks such as Internet and mobile communication networks, and to analyze and process information by using an intelligent computing technology, so as to improve the perception ability of the material world and realize intelligent decision-making and control [6]. The emergence of IoT has broken the barrier between the physical world and the information world, successfully integrating reinforced concrete, machines, and the Internet into a new whole and better serving human production and life. Therefore, IoT is also called a new wave of technology in the world of information and has become a hotspot for research and development and a technological high point in the new round of information technology [7]. The IoT positioning technology is an important technology of IoT, which refers to the technology of obtaining the location of objects through various sensors in the IoT [8]. Throughout the application field of IoT, positioning technology is widely used in logistics and transportation, manufacturing, transportation, mining, and healthcare. Many information collected through IoT sensing system will be difficult to play its proper value without the corresponding location information identification [9]. Therefore, how to use positioning technology to obtain location information more accurately and comprehensively has become an important research topic in the era of IoT.

In this study, we combine the IoT with robot technology and embed the intelligent control system of a ring lamp to achieve intelligent control. The main contributions of this study are in two aspects. First of all, we designed the mobile robot positioning system in the Internet of Things environment, including the specific design of the UWB wireless positioning module and scanning and matching module, and realized the mobile robot positioning. Second, we designed an adaptive fuzzy PI double closed loop current equalization strategy and constructed an interleaved bidirectional DC/DC simulation circuit using Matlab/Simulink to test its current equalization effect.

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2. Related Work

2.1. Ring Light System Based on IOT Technology. Based on the importance of intelligent monitoring of street lamps and the problem that ring lamps cannot be maintained in time in actual operation, the Internet of Things technology is applied to the ring lamp measurement and control system to achieve remote management and control of the street lamp system [10–12]. Based on the development status of the Internet of Things industry in China, this study puts forward a conclusion that the value of the Internet of Things industry needs to be further explored [13]. Based on the detailed study of IEEE802.15.4 communication standard and ZigBee protocol stack, this study proposes a remote street lamp monitoring scheme based on the ZigBee wireless communication technology, analyzes the advantages and disadvantages of LoRa technology, and studies its application in intelligent street lamps. Three key technologies of intelligent urban street lamp remote control system are studied, and the feasibility of "4G + LoRa" communication scheme for a single lamp remote control is analyzed. The above literature shows that the application prospect of IoT technology in the ring light system is very good, but research on the solar ring light system with IoT technology at home and abroad is still in the stage of exploration and attempt, and there is no good balance between cost and practicality.

2.2. Robot Positioning Technology. Accurate positioning of the mobile robot is the key to ensure that it can perform the navigation task correctly. The mobile robot uses internal sensors and external sensors to obtain information about the distribution of obstacles in the environment, the shape of the obstacles, and the position of the mobile robot itself. At present, the positioning methods commonly used for mobile robots are divided into three categories: absolute positioning, relative positioning, and combined positioning methods.

(1) Relative positioning or trajectory projection determines the position of the mobile robot in the environment by calculating the accumulated value of the body state of the mobile robot in real time. Relative positioning mainly uses internal sensors, such as optical encoder, odometer, and inertial guidance system (gyroscope and accelerometer) [14]. A localization algorithm based on a known map environment with a known initial robot posture is proposed in. This algorithm can locate mobile robots in a known environment. Chen et al. proposed a trajectory projection algorithm based on inertial sensors to achieve robot positioning in the 3D environment [15].

(2) Absolute positioning mainly calculates the position of the mobile robot by calculating the position information of objects in the environment that can be recognized by the mobile robot [16]. The sensors used for absolute positioning include active beacons, global positioning system (GPS), and special landmarks. A GPS based mobile robot positioning system is proposed to realize the large range positioning of mobile robots [17]. A location method based on real-time location and mapping (SLAM) is proposed to solve the problem of high precision location of mobile robots. Absolute positioning has the advantages of high precision and small error [18, 19].

(3) Due to the advantages and disadvantages of both relative positioning and absolute positioning methods, there are various literatures about the combination of several positioning methods to achieve the reliability and accuracy of positioning in recent years. For example, in [20], a mobile robot positioning method based on Hough transform was proposed, which estimated the robot's attitude distribution in the global map by establishing the Hough energy spectrum function of the global map. Reference [21] proposed a relative positioning method for mobile robots based on the fuzzy data fusion method, which combines ultrasonic sensor and laser radar information. The location coordinates of indoor mobile targets are estimated by building the ZigBee wireless network indoor positioning system [22, 23]. Fuzzy logic is used to process the information of multiple ultrasonic sensors carried by mobile robots to achieve positioning. A mobile robot positioning system based on distance sensor, manual landmark, and triangulation is designed and proved through physical experiments [24, 25].

Although the above algorithms have made some achievements in the localization of mobile robots, sensor errors, different map scenes and map noises, and dynamic and highly occluded environments will bring uncertainty and seriously affect the localization accuracy. Therefore, how to ensure the accuracy and robustness of the attitude tracking algorithm in different dynamic and complex environments is still a challenge for mobile robots.

3. Methodology

3.1. IoT-Based Mobile Robot Positioning System Design. In order to effectively control the mobile robot, the position, angle, speed, and angular velocity information of the mobile robot as well as the basic information of the surrounding environment are the data information that needs to be acquired. In order to obtain these necessary information, a multisensor positioning system is designed to collect and process the data information. The designed positioning system is shown in Figure 2, where the UWB BSi is the anchor node (base station) of the ultrawideband (UWB) positioning module, and the UWB Tag is the mobile node,

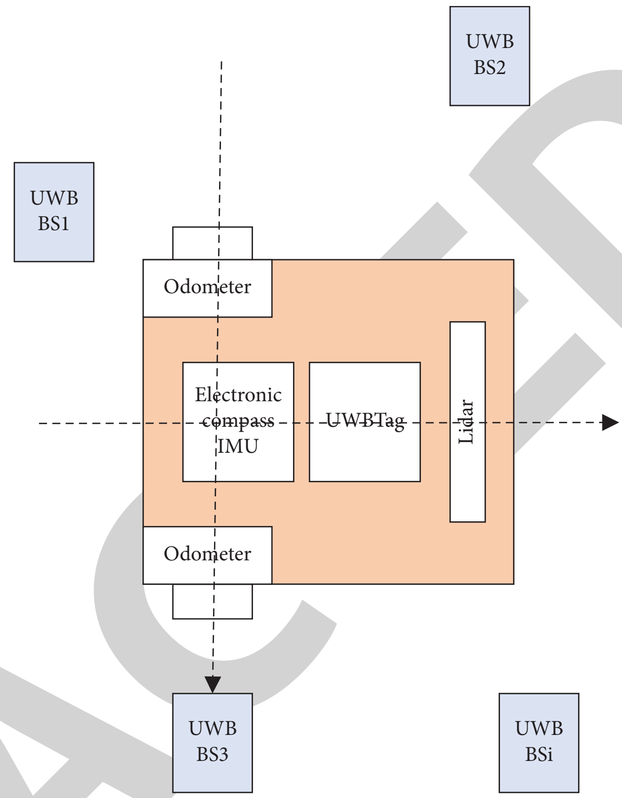

Figure 2: Schematic diagram of the mobile robot positioning system.

i.e., the target to be positioned. From the figure, we can see the main sensors installed in the mobile robot, including position sensor, velocity sensor, and scanner, to obtain the global position information, angle information, velocity information, and environment information of the mobile robot, respectively. The position sensor is a UWB wireless positioning sensor, which is mainly used to measure the position information of the mobile robot. The velocity sensor includes odometer and inertial measurement unit (IMU), which are mainly responsible for collecting linear and angular velocities of the mobile robot. The electronic compass is responsible for collecting the heading angle data of the mobile robot, and the LIDAR is used for scanning and positioning by scanning. The following is a specific design analysis of several sensor systems.

UWB positioning is a high-precision wireless positioning technology, which can achieve decimeter or even centimeter level positioning accuracy under ideal conditions. The hardware principle of the UWB positioning system is shown in Figure 3. The whole positioning system includes anchor node BSi, target to be located, and other communication equipment. The UWB transmitter module is responsible for receiving and sending UWB signals for positioning, and the WiFi module is responsible for interacting the collected distance data with other nodes and targets to be located. A single DW1000 chip communicates with the WiFi module through the USB interface. The targets to be located include the UWB transmitter module, ZigBee communication module, and controller. The controller is

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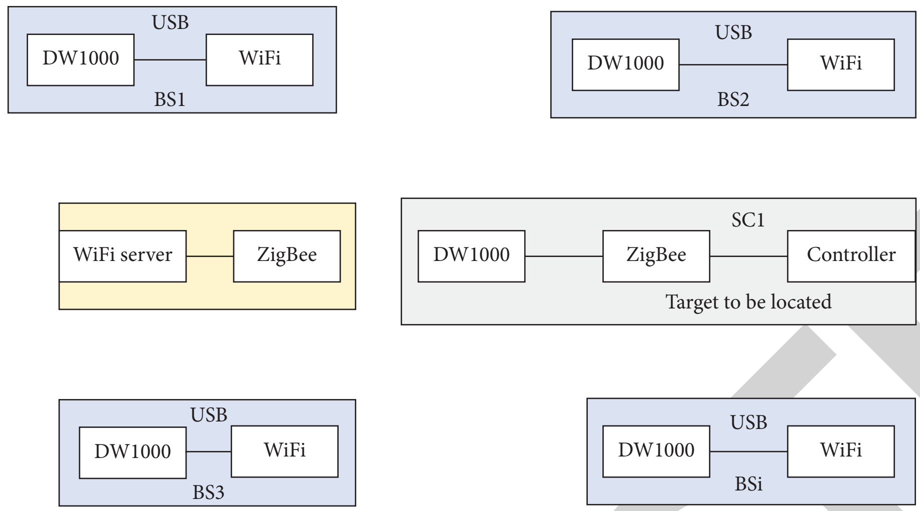

Figure 3: Schematic diagram of the UWB positioning system.

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used to further process these distance measurements and obtain the final location value by solving the corresponding location algorithm. ZigBee module and controller communicate with each other through an SCI serial port. In order to facilitate the expansion of the positioning node and improve the real-time performance of the positioning system, the communication system here uses a WiFi positioning system. The WiFi node acts as a server, responsible for aggregating the distance information measured by each UWB anchor node, communicating with the ZigBee module through the SCI serial port, and finally sending it to the controller of the target to be located. For this positioning system, we choose the time of arrival (TOA) based UWB positioning method, which is a ranging based positioning method, as shown in Figure 3. The positioning system shall include at least one tag node to be located.

The time synchronization of each positioning node has a very important impact on the accuracy of TOA positioning, so the TOA positioning method requires time synchronization of nodes. The common time synchronization method is hardware synchronization, but the hardware synchronization method is difficult to wire, and the requirement and cost are high, so a software synchronization method based on wireless communication is designed for the designed UWB positioning system. Unlike the unidirectional synchronization method of hardware synchronization, the software synchronization method is a bidirectional clock synchronization method, and its basic principle is shown in Figure 4.

In the designed positioning system, when the UWB transmitter module is successfully networked, the UWB signal is firstly sent by the target Tag to be located, which is broadcasted and contains the time synchronization information (SYNC_MSG). In addition to UWB wireless localization, a scan-matching-based localization method is also designed in this study, and the applied sensor is radar. The range and scanning frequency of the URG-40LX-UG01 laser scanner enable it to obtain a sufficient number of laser data points in most indoor environments and scan a large amount of environmental features in a short period of time to ensure the subsequent scan matching and other positioning algorithms. The implementation of after obtaining the scanned point data of the environment by LIDAR, this study uses the iterative closest method (ICP) to locate the mobile robot. The time complexity of the entire ICP algorithm is directly related to the number of data points to be matched between the two sets. The number of data points scanned by the URG-04LX laser scanner in the study is 668, and the ICP alignment of the two data point sets before and after the sensor motion using the original data points will consume a lot of time, which is not conducive to the real-time implementation of the subsequent localization algorithm. The IoT experimental environment of the mobile robot in the study is indoor, which is relatively structured and the contours of many objects (e.g., walls, doors, windows, tables, and chairs) can be described by line segments. When LIDAR scans these objects, the measured data point sets reflect distinct line segment features. In an indoor environment, a frame of LiDAR data can usually be divided into several line segment features. If a number of features (e.g., line segment endpoints and midpoints) on the line segment are used instead of all data points on the line segment for the ICP alignment, this will greatly reduce the number of data points for Tem and Ref, and thus improve the real-time performance of the ICP algorithm, as shown in Figure 5. Based on the above analysis, the study proposes the line segment feature-based ICP algorithm to replace the basic ICP algorithm for scan matching solution. The flow of the line segment feature-based ICP algorithm is shown in Figure 6. Compared with the traditional ICP algorithm, the line segment matching-based ICP method mainly has an additional step of line segment feature extraction.

3.2. Dual Closed-Loop Flow Control Strategy Based on Adaptive Fuzzy PI Technique. Fuzzy control is based on the process of people's self-experience in dealing with complex problems. If the accumulated practical experience of human beings can be summarized and processed and described in the appropriate language, it can be summarized

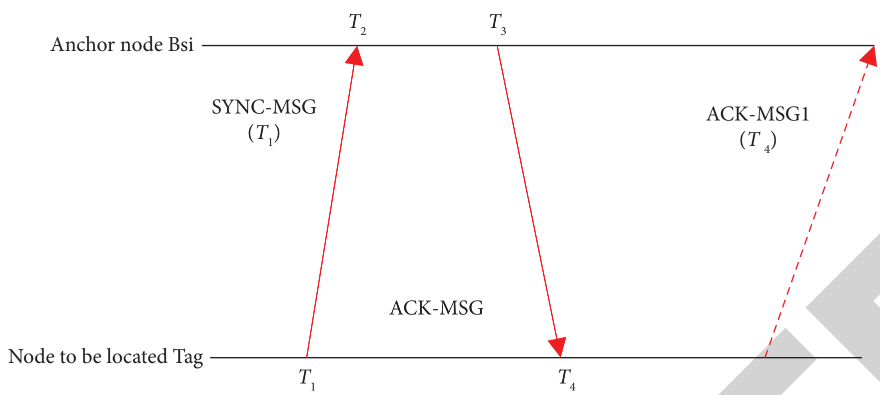

FIGURE 4: Software time synchronization principle.

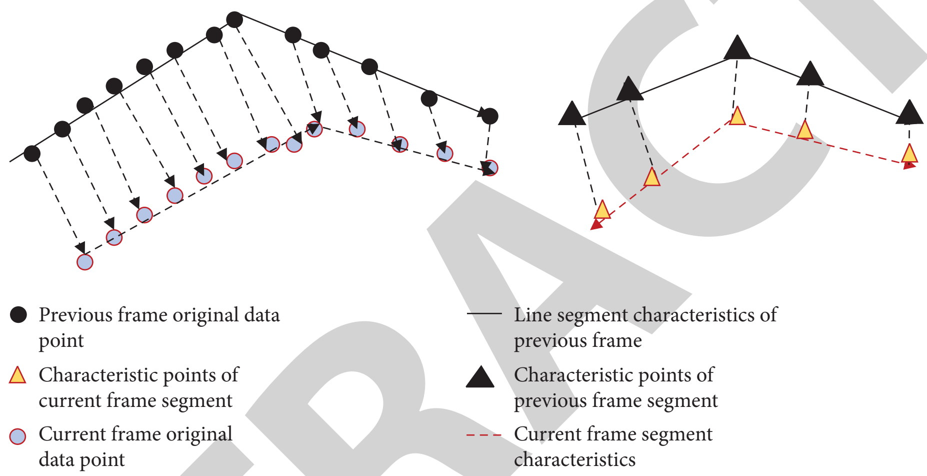

FIGURE 5: Schematic diagram of ICP based on line segment characteristics.

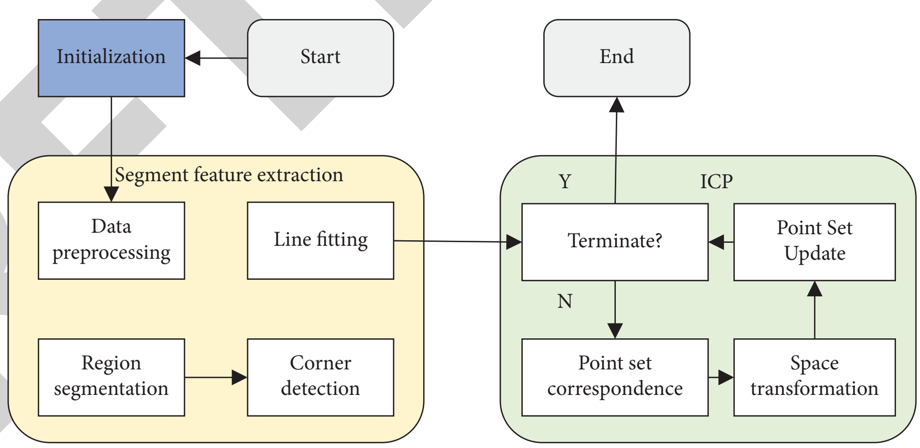

FIGURE 6: ICP algorithm flow based on line segment features.

as a fuzzy control method, and if combined with the concept of fuzzy mathematics, it can form a fuzzy control theory. If the voltage external loop current independent internal loop PI control is used, although the stability is good, the dynamic regulation ability is poor because the actual system is mostly nonlinear, and it is difficult to calculate more accurate PI parameters, thus the control effect cannot be guaranteed. On the contrary, fuzzy control can better adapt to the changes of nonlinear systems, but has the problem of poor steady-state performance. If the two algorithms are combined, the control effect will be more satisfactory, so this study proposes an adaptive fuzzy PI-based double closed-loop control equalization strategy, i.e., adding fuzzy control to the voltage outer-loop current independent inner-loop PI control. Then, the fuzzy controller can output the correction value of the regulation

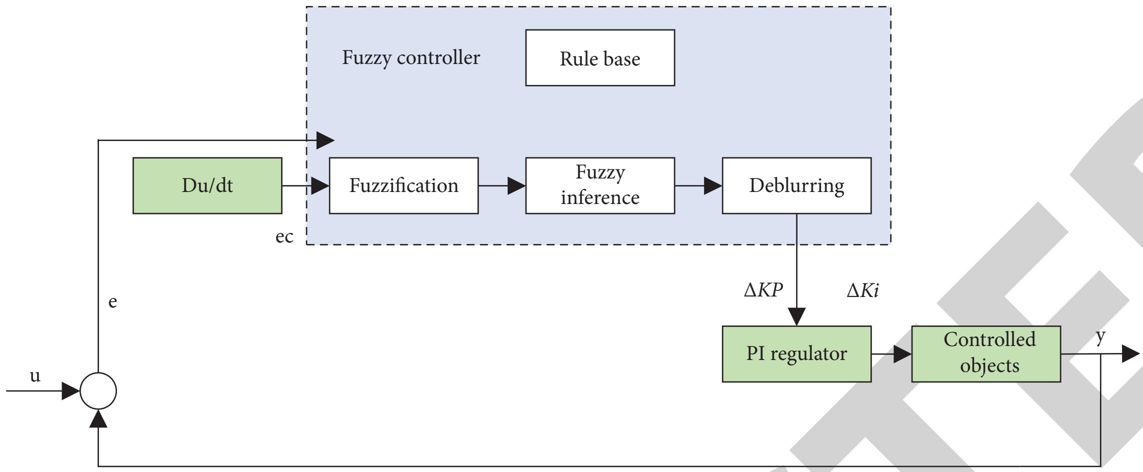

Figure 7: Structure of adaptive fuzzy PI control.

coefficient according to the real-time system deviation and input to the PI regulator to achieve the purpose of PI parameter adaption.

As shown in Figure 7, the adaptive fuzzy PI control structure is mainly divided into two parts: the fuzzy controller and PI regulator. The results are then defuzzified to obtain ΔKp and ΔKi, which are input to the PI regulator and superimposed with the Kp and Ki set in the PI regulator. When the actual situation of the control system changes, the PI parameters can be adaptively adjusted by fuzzy inference. Adaptive fuzzy control is mainly applied to the outer voltage loop and multiple inner current loops in the dual-loop control of an interleaved parallel bidirectional DC/DC converter. The voltage outer-loop fuzzy controller and current inner-loop fuzzy controller have the same control rules except that the corresponding input and output variables are different, so the two fuzzy PI controllers have similar structures. Based on the fact that a fuzzy control system is composed of input and output variables, fuzzification, rule base, fuzzy inference, and defuzzification, the adaptive fuzzy PI controller design will be carried out from the following parts [26, 27].

Figure 8 shows the input and output diagram of the fuzzy control of the voltage loop and current loop. For the design of the fuzzy controller of the voltage loop, the input is the voltage error value Ve and its change rate is Vec at the output end of the converter, and the output is ΔKp-V, and ΔKi-V is used as the correction parameter input of the voltage loop PI regulator to obtain the total current reference value Iref of the current loop fuzzy PI controller. The input of the current loop fuzzy controller is the inductor current error value Ie and the conversion rate Iec, and the corresponding output is input to the current loop PI regulator ΔKp-i and ΔKi-i, and the output is duty cycle D. The effect of the fuzzy PI control depends on the reasonable formulation of fuzzy control rules. In order to better achieve the effect of uniform flow control, the control rules of voltage loop and current loop are the same. The following is an example of voltage loop. The fuzzy control rules are as follows: (1) when |Vec| is relatively large, regardless of the Vec value, it means that the voltage difference is large, and kp and ki should be significantly increased to ensure the system response speed. (2) When the deviation Ve and the rate of change Vec are moderately large, Kp and Ki can be increased to reduce the overshoot of the system response and ensure a certain system responsiveness. (3) When the deviation is small, the output voltage will soon reach the reference value, so Kp and Ki should be significantly reduced. According to the above rules, ΔKp and ΔKi's fuzzy control rules are shown in Tables 1 and 2.

According to Table 2, it can be entered in the fuzzy rule editor in the form of If ⋯ then. The common defuzzification methods are centroid, MOM, and bisector, and the maximum affiliation method is chosen in this study.

4. Experiments

4.1. Experimental Analysis of Robot Positioning. The results of the positioning experiments are shown in Figure 9. It can be seen from the figure that the positioning accuracy of the UWB is significantly improved after time synchronization compared with the positioning of the UWB without time synchronization, and the accuracy can reach ±0.15 m, which can basically meet the positioning requirements of the mobile robot.

In order to compare the superiority of the applied UWB localization methods, the experiment was also conducted without NLOS identification and processing, and the results of the two experiments are shown in Figure 10. The results of the two experiments are shown in Figure 10. It can be seen from the figure that without NLOS identification and processing, the UWB localization results show large localization errors and large randomness of the data, while with NLOS identification and localization by the WLS algorithm, the localization results are better than those without NLOS identification and processing, although they are worse than those without NLOS identification and processing.

Scan matching localization verification of the experimental data collection site for the line segment feature-based ICP was located in a corner of the laboratory, and a total of two sets of experimental data were collected. In order to highlight the higher execution efficiency of the line segment

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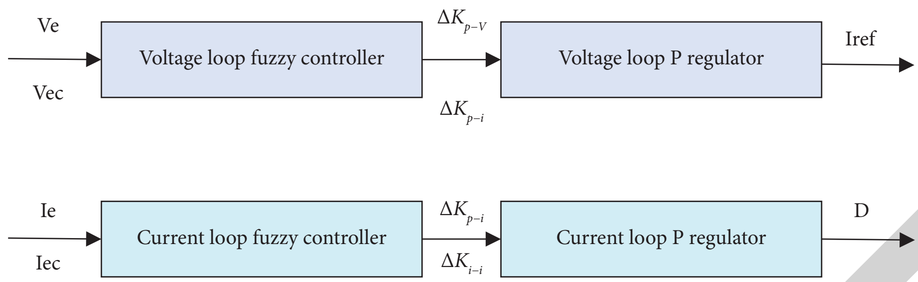

Figure 8: Input and output diagram of a voltage loop and current loop fuzzy control.

Table 1: Fuzzy rules of ΔKp.

Ve	Vec						
	NB	NM	NS	ZE	PS	PM	PB
NB	PB	PB	PB	PB	PB	PB	PB
NM	PB	PB	PM	PM	ZE	NS	NS
NS	PB	PM	PM	PS	NS	NM	NB
ZE	NB	NM	ZE	ZE	ZE	NM	NB
PS	NB	NM	NS	PS	PM	PM	PB
PM	NS	NS	PS	PM	PM	PB	PB
PB	PB	PB	PB	PB	PB	PB	PB

Table 2: Fuzzy rules of ΔKi.

Ve	Vec						
	NB	NM	NS	ZE	PS	PM	PB
NB	PB	PB	PB	PB	PB	PB	PB
NM	PB	PB	PM	PM	NS	NM	NB
NS	PB	PM	PM	PS	NS	NM	NB
ZE	NB	NB	ZE	ZE	ZE	NB	NB
PS	NB	NB	NM	PS	PM	PM	PB
PM	NB	NM	NS	PM	PM	PB	PB
PB	PB	PB	PB	PB	PB	PB	PB

based ICP algorithm, the experiments are compared with the normal ICP algorithm. In the first set of experiments, the actual heading deflection angle is −11°, and the actual x-direction and y-direction displacements are 0.15 m and 0.20 m, respectively. In the second experiment, the actual heading deflection angle was 18°, and the actual x-direction and y-direction displacements were −0.15 m and −0.15 m, respectively. In this section, we evaluate the performance of the 1DSP-IE using MATLAB R2015b software and a computer with an Intel(R) Core(TM) i5-6200 CPU @ 2.30 GHz and 8 GB of RAM. The experimental results of the two groups are shown in Figures 11 and 12, and the comparative data of the experimental results are shown in Table 3. From the experimental results, it can be seen that the time required to solve the ICP algorithm based on line segment characteristics is greatly reduced compared with the common ICP algorithm, and the accuracy does not deteriorate significantly, which verifies the effectiveness and superiority of the algorithm.

The LIDAR was installed on the mobile robot, and the mobile robot was set to move in a rectangle with a length and width of 3.6 m × 3.0 m . The positioning results of the ICP algorithm based on line segment features are shown in Figure 13, which shows that the positioning accuracy is good and can meet the general positioning requirements of the mobile robot.

4.2. Control System Analysis of Ring Light Circuit. For the 2–4 way staggered parallel bidirectional DC/DC simulation model, the input 24 V and output 12 V are set uniformly, the inductor and capacitor parameters are kept the same, and a resistor of 0.2 Ω is added in series in one of the circuits. It is convenient to simulate the equalization effect of the 2–4 channels interleaved parallel model under the inconsistent parameters. (1) Simulation analysis of the two-way staggered parallel bidirectional DC/DC model.

As can be seen from Figure 14, the value of each inductor current is equal to half of the output current, after the BUCK step-down, despite the inconsistency of the resistor parameters, the output voltage is still 12 V, and the effect of equalizing the current of each circuit is still maintained. Figure 15 shows the effect of phase shifting and equalization of inductor current, it can be clearly seen that the phase difference between the two inductor currents is 180°, and the waveform is more stable.

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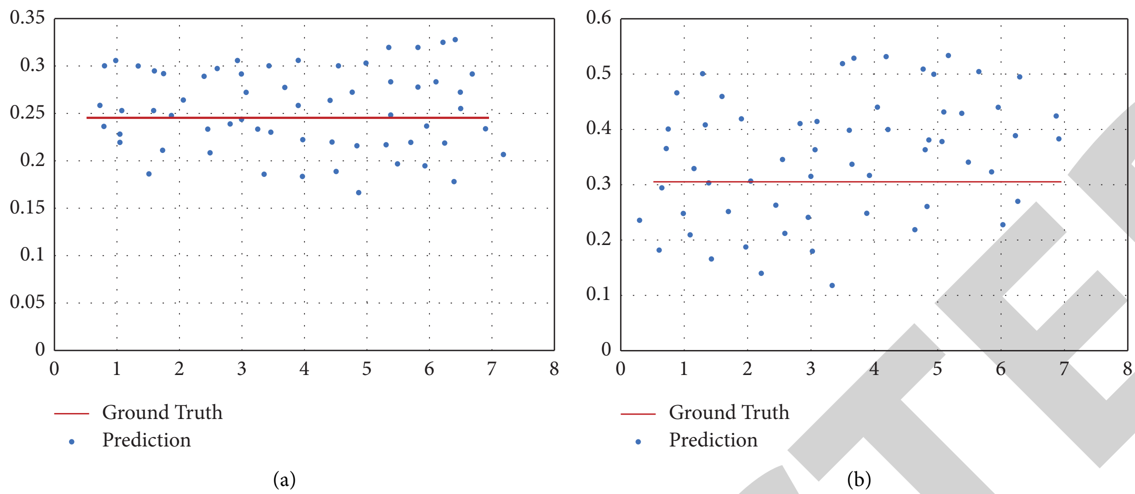

FIGURE 9: UWB positioning results (no NLOS). (a) Performing time synchronization. (b) Without performing time synchronization.

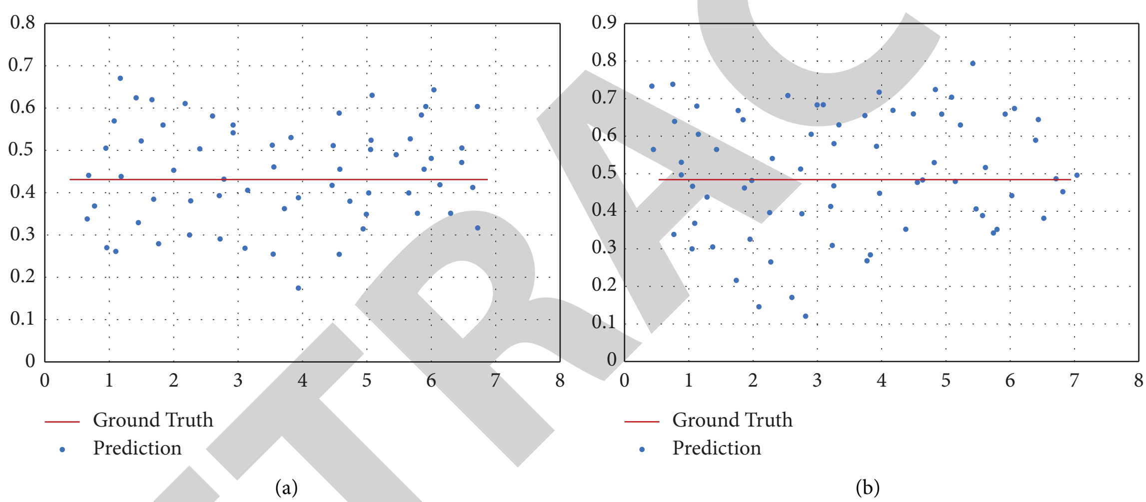

FIGURE 10: UWB positioning results in the presence of NLOS. (a) Performing NLOS. (B) Without performing NLOS.

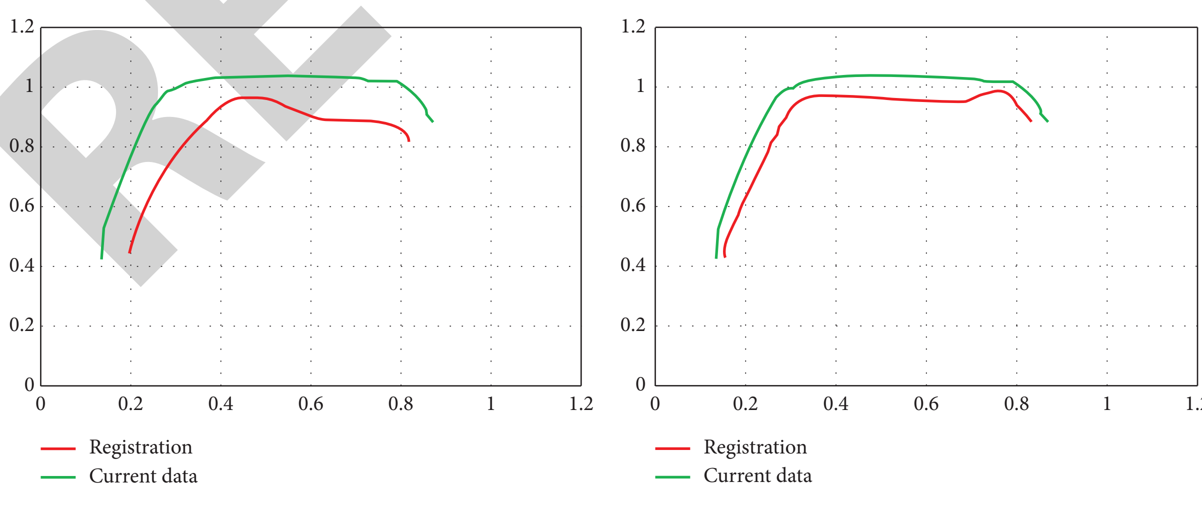

FIGURE 11: ICP experimental results based on line segment features (group I). (a) Common ICP methods. (b) Line based ICP methods.

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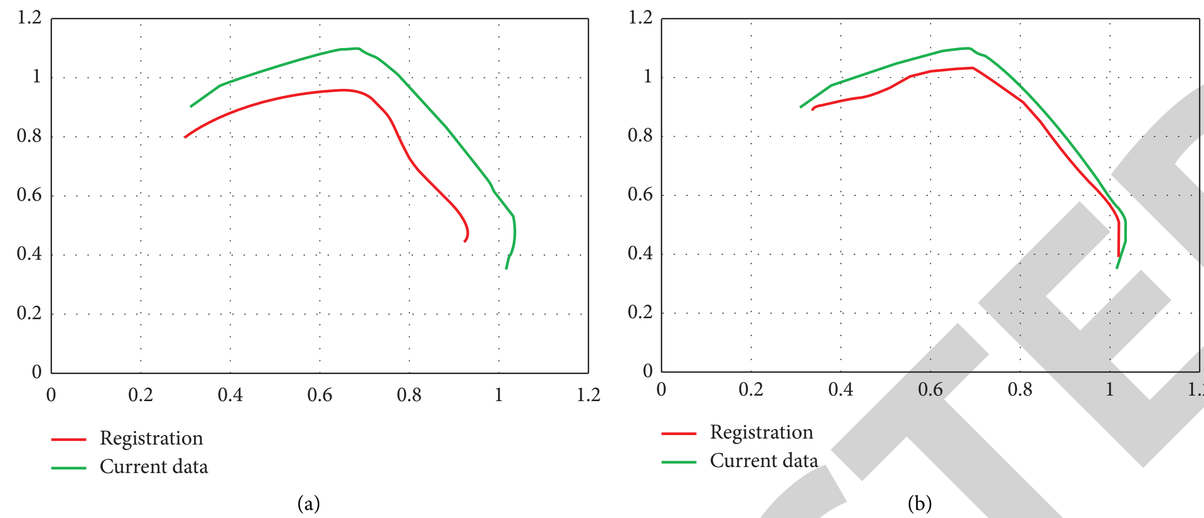

FIGURE 12: ICP experimental results based on line segment characteristics (the second group). (a) Common ICP methods. (b) Line based ICP methods.

TABLE 3: ICP experimental results based on line segment characteristics.

Group	Algorithm	Yaw angle (degrees)	Displacement in x-direction (m)	Y-direction displacement (m)	Tem data points	Ref data points	Alterations	Execution time (seconds)
1	ICP	−0.63	0.1504	0.1765	682	660	29	2.4776
	ICP based on line segment features	−0.30	0.1478	0.1799	33	30	7	0.0243
2	ICP	21.29	−0.1296	0.1514	621	663	36	2.4402
	ICP based on line segment features	21.08	−0.1309	0.1641	51	42	19	0.0753

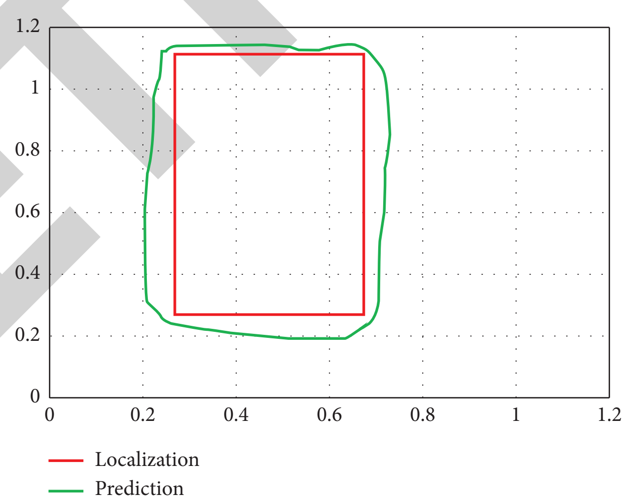

FIGURE 13: ICP indoor positioning experiment results based on line segment characteristics when moving along a rectangular route.

Then, we simulate and analyze the three-way interleaved parallel bidirectional DC/DC model.

As can be seen from Figures 16 and 17, the waveforms of each inductor current and output voltage current in the three-way staggered parallel bidirectional DC/DC are relatively stable, and the value of each inductor current is equal to 1/3 of the output current Io, and each inductor current maintains the equalization effect under the inconsistent parameters. The simulation results of the above 2–4 interleaved parallel bidirectional DC/DC show that the adaptive fuzzy PI double closed loop current equalization control strategy designed in this study can achieve the purpose of current equalization under the inconsistent parameters, and the output value of the system remains stable, and the current ripple of each channel

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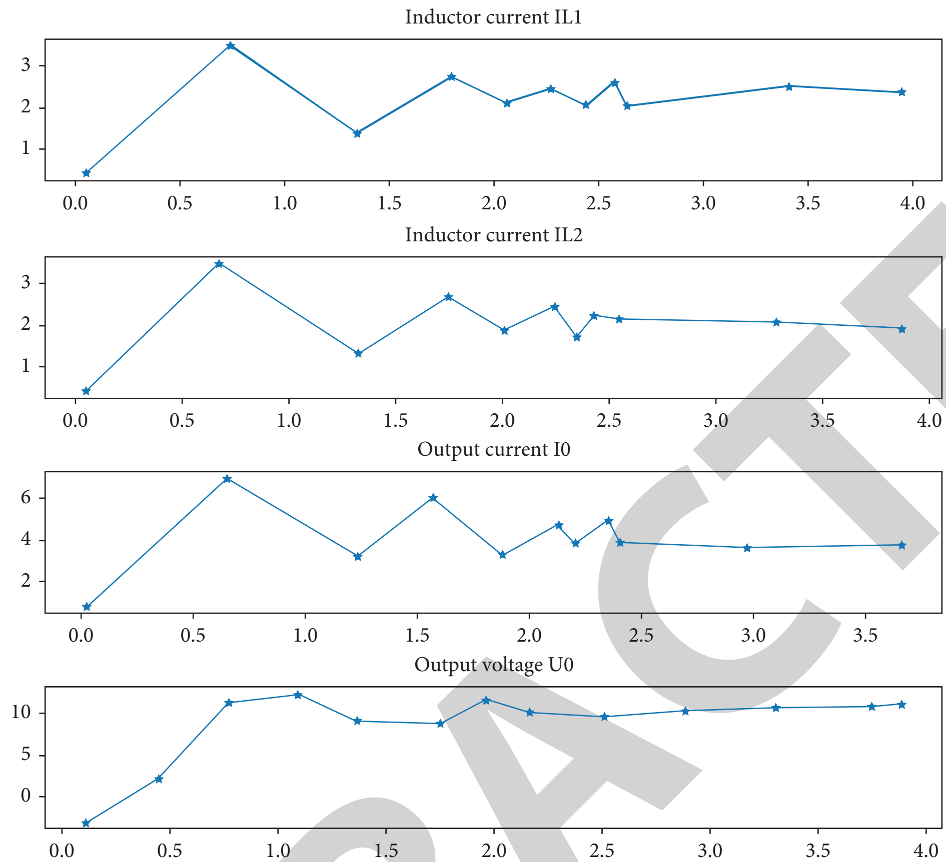

Figure 14: Simulation diagram of inductive current and output voltage current of each circuit.

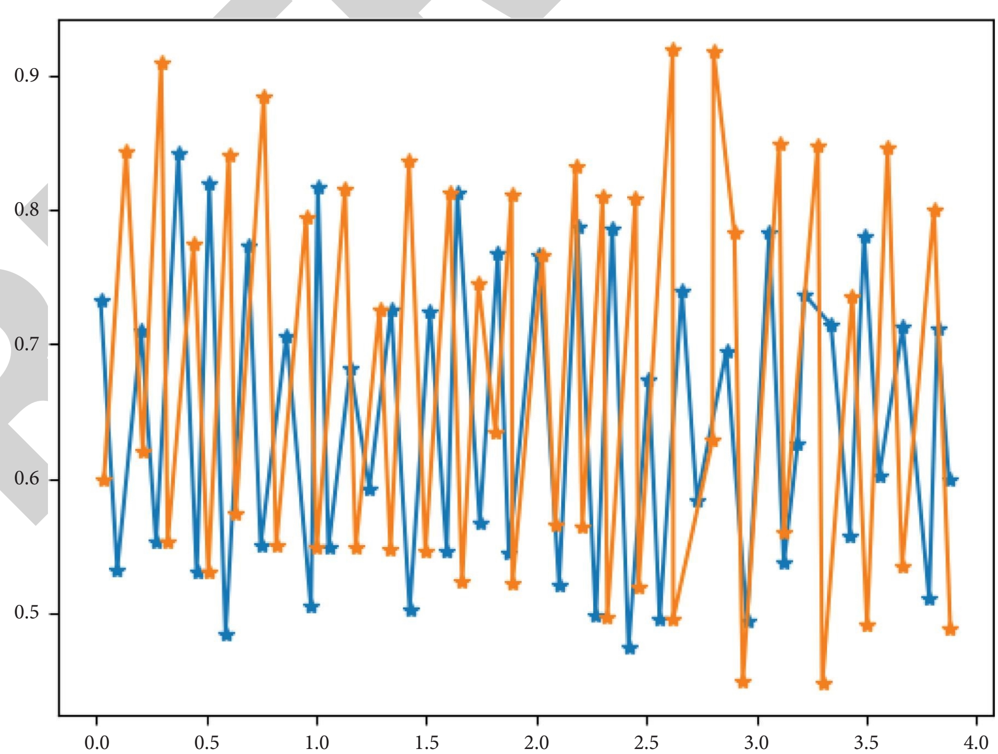

Figure 15: Effect diagram of phase shifting current sharing of inductance current under inconsistent parameters.

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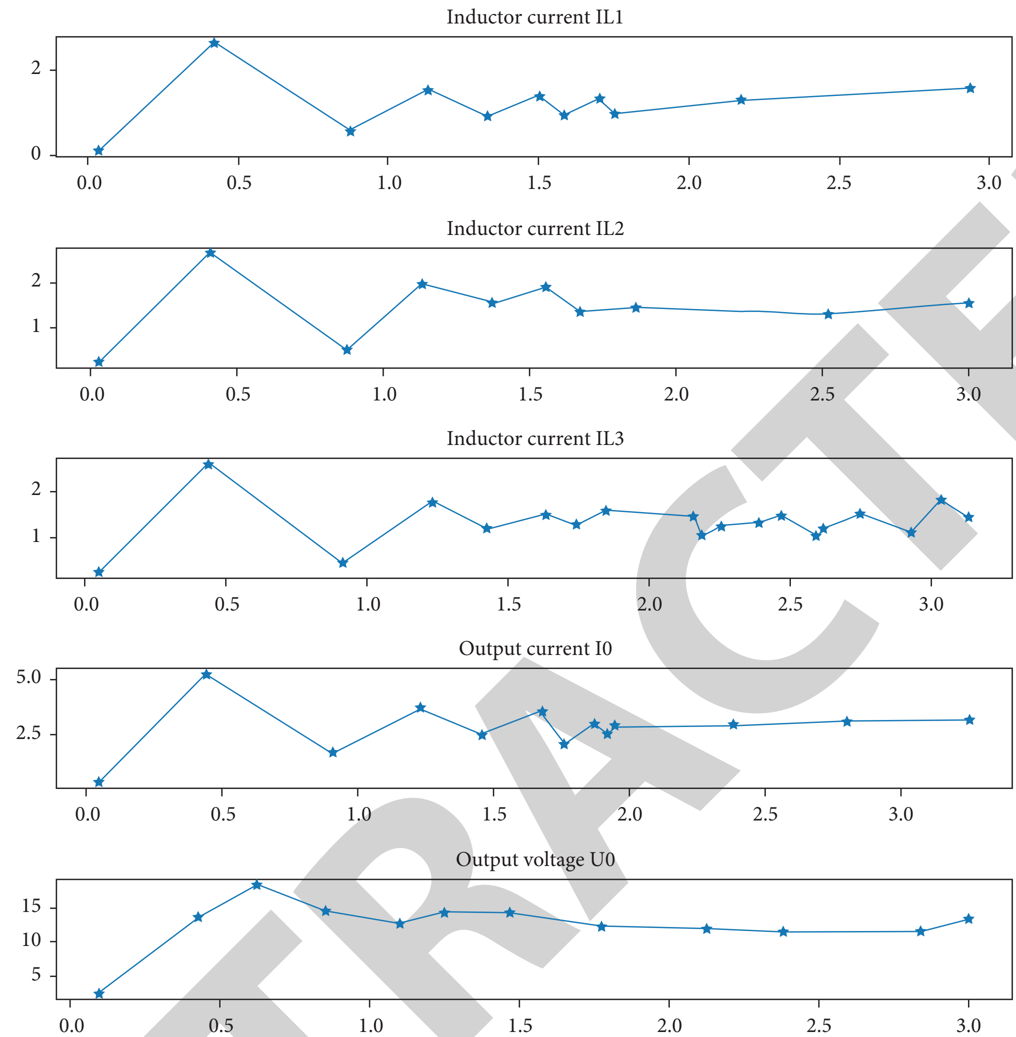

FIGURE 16: Simulation diagram of inductive current and output voltage current of each circuit.

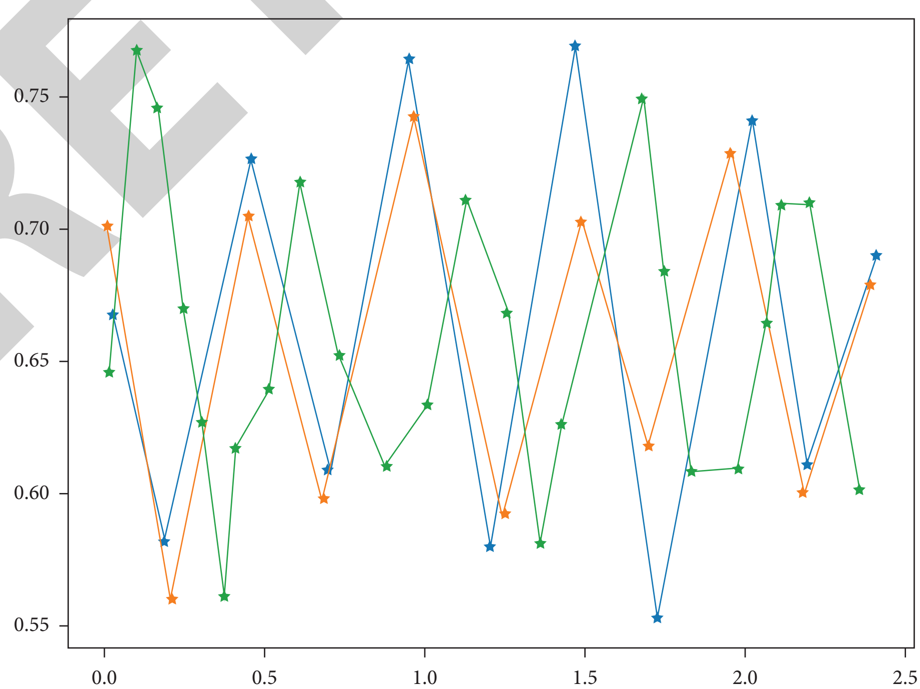

FIGURE 17: Inductor and output voltage current waveforms.

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cancels each other in the phase shift control, which helps to reduce the ripple size of the total output current.

5. Conclusion

In this study, we propose the idea of combining the IoT mobile robot with the ring light intelligent control system, mainly to solve the positioning problem and the hair problem of the intelligent control circuit. We designed an autonomous positioning system for mobile robots in the IoT environment based on UWB wireless sensors and inertial sensors carried by mobile robots. We have realized high precision and high reliability positioning of mobile robot. The simulation results show that the system maintains equilibrium, the system output is stable, and the ripple is low when the parameters are inconsistent.

Data Availability

The experimental data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest regarding this work.

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