

Research on the Construction Scheme of Industrial Robot Service Platform Based on “Government Procurement and Leasing” Mode

Hao Zhou

Wuhan Business University, Wuhan, 430056, China

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Abstract: In the background of the rapid development of the industrial robot industry, some pain points in the development process are analyzed, based on the “government procurement and leasing” industry model derived an industrial robot as a service object of the Internet platform. The platform focuses on the sales of robot suppliers, the solutions of system integrators, the automation transformation needs of robot application enterprises, the online diagnosis of industrial robots, the training of robot industry engineers and other services. The detailed construction scheme of the platform is discussed.

1. Introduction

The industrial robot service platform is launched on the basis of the new mode of “government procurement and leasing”. It is a large online interactive platform integrating technology exchange, information integration, resource sharing and other functions among suppliers, government, system integrators and enterprises. With industrial robot leasing as the main body, the platform applies the latest generation of artificial intelligence system, which can monitor the working conditions of robots and the subsequent development of enterprises in real time through big data, so as to achieve the effect of regulatory reform.

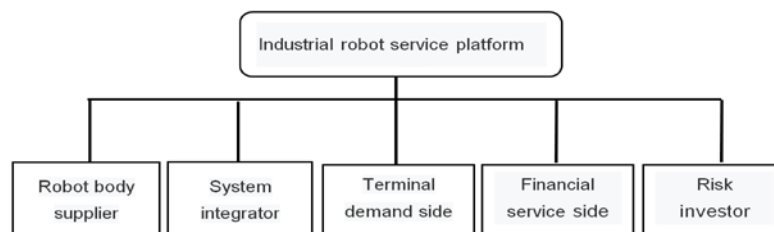


Fig.1 Distribution Diagram of Service Objects of Industrial Robot Service Platform

2. Blueprint Design

This platform is a set of robot supplier's sales, the scheme of system integrators, robot applications enterprise automation upgrade online diagnosis, robots, robot engineer training, enterprise to provide “five one” the personalized demand of industrial robot is a comprehensive

online service platform, this platform all partners and end users will be able to sharing platform of information resources, the specific platform main body framework as shown in figure 1-2.

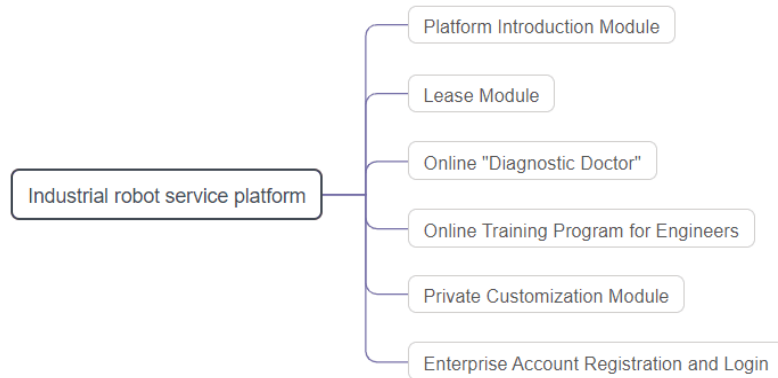


Fig.2 Functional Overview Diagram of Industrial Robot Service Platform

As shown in Figure 1, the page structure of the industrial robot platform is roughly composed of six display modules, which are platform introduction module, rental module, online diagnosis doctor module, online training module for engineers, personal customization module and login module.

(1) Introduction module of platform

In this interface, users can understand all the functions of the platform, and also see the preview pictures of some industrial robots and their functions. If the user has a demand for leasing business, you can learn the whole process of leasing through this page.

(2) Leasing module

This page shows users the preparatory work before leasing, the implementation plan of leasing project, project settlement and relevant information at the later stage of leasing. Before leasing, the platform needs to certify the leasing qualification of enterprises. The certification criteria are as follows:

- 1)Whether it is a state-sponsored enterprise
- 2)Whether it is a rigid enterprise
- 3)Whether the credit score of the enterprise meets the requirements
- 4)Whether there is a trust-breaking problem

Based on the above standards, the platform will provide a certification level through comprehensive evaluation to judge whether the enterprise is qualified for leasing. Enterprises that meet the certification level can fill in the information. For enterprises with higher certification levels, the platform can provide appropriate financial guarantee services in addition to leasing services. For companies with lower certification levels, the platform will refuse to provide any reputation-related services.

(3) Online diagnostic doctor module

The platform provides online diagnostic services based on industrial robots, which can be divided into:

A. AI consulting

With the rapid development and gradual commercialization of artificial intelligence technology, it has become a widespread demand for intelligent application providers to use artificial intelligence technology to improve the functions and performance of intelligent applications, as well as improve user experience.^[2]For users with uncomplicated questions, they can directly choose the way of

artificial intelligence consultation to get the answer. This way is convenient and fast without waiting. AI can give the most reasonable answer according to the user's questions.

B. Human services

For the users who have more complex or difficult problems to solve, they can choose the way of manual service to obtain solutions, which will be more humanized and the communication will be more smooth.

C. Professional engineers answer questions

For users with professional problems and users who cannot get satisfactory feedback from the above two schemes, they can choose to ask a professional engineer to answer their questions. Because this service takes into account the problem of hiring engineers, the platform will charge reasonable fees according to the duration of inquiry.

(4) Engineer Online Training Plan

In response to the shortage of talents, the platform launched an online training program for engineers.

The online training content of this platform can be mainly divided into three categories:

A. Video courses recorded by a team of professional engineers

Engineers will systematically divide the learning content into several videos according to the course content. In each video, there is corresponding practical project practice, which is no longer boring pure theoretical learning. Do not understand the place can be repeatedly watched.

B. A team of professional engineers answers questions online

Every night, I regularly organized and trained students to learn and exchange learning experience and put forward questions in the learning process, so as to digest and absorb the learned content in time.

C. Online whole-course training course for professional engineers

According to each student's basic situation, interest and ability, the engineer team will teach them how to apply the knowledge learned to the actual production.

(5) Private customized modules

In the process of industry development, the rapid development of science and technology, the continuous adoption of new technologies, new demands will also be constantly generated, the development of personalized service is the competitive trend of the modern market, in order to adapt to the market, to keep customers to meet the constantly generated production needs and standards. Therefore, the platform will make improvements to existing robot production lines or upgrade and adjust new production standards according to customers' personalized needs. If the above measures cannot meet the customer's needs, the platform will apply for the procurement of industrial robot production lines or industrial robots according to some reasonable production needs.

(6) Registration and login module

In order to more convenient management of external users and internal service parties, but also to convey brand information, convenient, system integrators, enterprises and platform project docking. The platform adopts the real-name registration method for registration and login. During registration, the platform will register the basic information of the registrant according to its type, such as:

A. Registered identity (brand, integrator, enterprise, learner, school).

B. ID number, mobile number, address.

C. Industry (automotive industry, metal processing, foundry industry, engineering equipment, services and entertainment, etc.).

D. The name of the company.

Users can log in and use the services provided by the platform only after the platform has passed the audit.

3. Specific Projects and Implementation Plans

3.1 A Robot Rental Platform for Enterprises

The project uses financial leasing as a tool, which can reduce the capital threshold for enterprises to apply industrial robots and improve the application rate of industrial robots.^[3] Launched under the auspices of the government, the service platform allows companies to rent robots in two main ways. First, the government will rent the robots purchased by the government. At the initial stage of the platform, the government will first select robot manufacturers through field research and investigation, and then purchase a certain number of robots for leasing. Only enterprises with rigid needs for robots can apply for leasing such robots. The second way is to have a robot needs to fill in application form for leasing on the platform of enterprise, the content including the company profile, lease, the lease time, types and models of the robot and the development plan of the enterprise, etc., the government information through the application of audit judgment the enterprise meets the requirements for the lease last for eligible enterprises to apply for a robot to purchase. The platform is a two-way autonomous interaction with high degree of freedom, which facilitates mutual understanding and decision-making between the leasing parties.

3.2 Provide Online Training Technology of Robot Technology

At present, the major of industrial robot in China's colleges and universities is still in its infancy, and most of the core technical personnel in the industrial robot industry are still from automation control, mechanical design and manufacturing, information engineering and other majors. Although they have a lot in common with the learning content of robotics, according to the current situation of the industry, this kind of graduates can not adapt to the work of the enterprise well at the beginning of entering the enterprise, and they need to go through a long period of professional skills training. It consumes a lot of manpower and material resources and time, which is undoubtedly an obstacle to the development process of enterprises. From the perspective of interests, this is a kind of economic loss for enterprises, so it is urgent to need a professional industrial robot skills and technology training platform. This platform can not only systematically and directionally train theoretical knowledge, but also arrange offline practical operation and learning, so as to continuously import excellent technical talents for the robot industry, so that technical talents can quickly invest in the technology research and development and production of enterprises, and promote the development of core technologies of enterprises.

3.3 Online “Diagnostic Doctor” of the Robot

There are many types of industrial robots and their operations are different. How can enterprises cope with various emergencies in the process of operation or use? Don't worry, in view of this kind of problem, this service platform with the function of “robot doctors diagnosed online”, companies can through the platform in a timely manner will feedback the problem to the system (such as by voice or video connectivity form), the background will have professional engineers from all over the world online diagnosis to the problem of enterprise feedback and give timely help. If the online solution still fails to solve the actual problem, the platform will contact the relevant engineer to test the robot of the enterprise with the problem as soon as possible, and the robot can be replaced

according to the actual situation. This online interactive “online diagnosis” function can ensure that the robot can be used normally after leasing to enterprises, providing stable production capacity.

3.4 Solve the Problem of Industrial Robot Engineers Docking with Enterprises' Needs

At present, various internal training and external lecturers abound in enterprises. There is no data interaction between training and training, and there is no unified and standard system.^[4]Platform by building based on robot and robot engineers between a third-party service platform, to enterprises in the front-end web page release employment information platform, the engineer will be cast on self resume to back-end systems, the background system based on supply and demand require automatic matching and recommend enterprises to engineer, finish hiring engineers work. Will all kinds of robot according to the enterprise scale, enterprise type, system integrators, users, vendors, local government, etc.), needs assessment, greatly reduced the mutual choice between engineers and enterprise information complexity, can not only improve the efficiency of the enterprise recruitment activities, also can let robot engineers are more likely to find the most suitable for their own businesses, let already shortage of robot technology, applied talents play out their biggest potential value, create the knowledge economy.

3.5 Provide Financial Services to End Users and Integrators.

Platform for credit score good integrator users and end users open financing lease, installment and ious in the financial and other financial services, for the cash-strapped end users, the platform for the ordered products 70% of the balance payment can provide third party financing lease payment mode, for the majority of users solve difficult fund pressure, open the fastest industrial upgrading of the green channel. To be specific, the platform provides financial leasing services for the end customers to relieve their short-term financial pressure. The end customers only need to return the relevant payment on behalf of the platform and the interest generated during the period within the agreed period. The end customer only has the right to use the relevant products within the agreed period of time, and the ownership of the products is temporarily owned by the platform company. After the customer returns all the payment and remuneration, the ownership of the products will be automatically transferred to the end customer according to the agreement.

4. Platform Advantages

(I) This platform is established on the basis of the “Government-Leasing New Model”. The ownership of the robots is owned by the government, and the robot subject is purchased by the government. The transaction process is more convenient and safer than the traditional model;

(II) The service provider is certified by 100% real name, with formal guarantee, and the platform adopts the points-based management method to strictly supervise the enterprise members and members of the system;

(III) Rigorous acceptance work, payment after customer satisfaction, order safety is guaranteed.

(iv) A formal online transaction agreement is provided, and the platform incorporates relevant information including its personal attributes into the credit system by means of qualification review [5], so as to protect the rights and interests of the three parties;

(v) The service provider shall make a commitment of good faith deposit to protect the employer's sovereignty. If there is any problem in the transaction, the deposit shall be paid first;

(vi) Financial leasing service can solve customers' short-term capital problems.

(vii) Old robots can be recycled to prevent the waste of valuable parts.

5. Platform Operation Mode

5.1 Equipment Delivery

All leased equipment must be delivered and installed by the offline staff of the platform for the user enterprise after completing the legal leasing procedures and signing the legal compliance contract, and the user enterprise can only sign for receipt after checking and finding nothing wrong. All delivery or pick-up must be carried out on the platform or APP, and the delivery risks shall be borne by the platform and the enterprise respectively;

5.2 Extend the Lease Time

In order to avoid inconvenience to other tenants, must be returned in the rental before the deadline of two weeks to a month to extend the operating lease time of leasing robots, such as user enterprise party not to renew the robot within the prescribed time period, all is regard as not relet, this platform will be in 24 hours after the deadline for robots to recycle. If the user wants to renew the lease in the future, he/she must log in the platform again and go through the lease procedures again;

5.3 Cancellation

Cancellations require 24 hours notice. If the enterprise fails to cancel the business within 24 hours, it will be deemed to have passed the relevant regulations of the contract and accepted the lease contract and services. We will charge the corresponding fees to the enterprise according to the law, and the enterprise shall bear the loss caused by the enterprise's operation error.

5.4 Lost/Damaged/Malfunctioning:

This platform belongs to the list of direct government purchase orders. If there is any shortage/damage/failure, users can fill out the form and provide relevant after-sales service in the post-lease column on the platform. We hereby declare that: the platform only accepts free repair for non-man-made damage or failure. In case of man-made damage or failure, the user enterprise shall pay the corresponding repair fee.

5.5 Price Changes

The rental price of this platform is decided by the government. All online rental robots will disclose the rental price of the same period and the rental price of the previous period.

5.6 Integrating System

After the user enterprises register and log in the platform, the platform will rate and score the enterprise's credibility based on the operation and financial status of the enterprise. In the later stage, the real-time status of the enterprise will be monitored and the corresponding plus or minus points will be given. If the enterprise's credit score is lower than the standard value (the minimum value), the platform will take back the robot and the relevant government departments will not provide rental services to the enterprise. At the same time, relevant government departments will also carry out an investigation to find out the cause and issue a rectification order. Until the company's points meet the standard, the rental service is reopened. The specific rules are as follows:

5.7 Responsibilities

The leasing company is responsible for all damage and/or loss of the leased equipment except for normal wear and tear. The ownership of all robots on the platform is owned by the government, and the leasing company shall not transfer or transfer the rights under this lease agreement, and shall not pledge, mortgage or mortgage the leased equipment or its lease right, and the leasing company shall not agree to lien, charge or encumbrance. In the event of loss or damage to the leased equipment, the leased company shall pay to the Platform all costs and expenses for such repair or replacement and shall pay the rental fee within a specified period of time until such lost or damaged equipment shall be replaced or repaired.

5.8 The Expected Effect

1) By Introducing a New Model of Government Procurement and Leasing, Improve the Utilization Rate of Funds and Realize the Visualization and Clarity of Government Funding Flow.

2) Through the Use of Leasing, It Can Help Enterprises Solve the Problems Such as Lack of Funds and Promote the Development and Progress of Industrial Robot Enterprises from the Root.

3) The Following Effects Can Be Achieved by Establishing an Industrial Robot Service Platform Based on the New Model of Government Procurement and Leasing:

To promote the use of rent -- to change the government's direct subsidies to enterprises into low-cost industrial robot leasing, to promote the large-scale application of industrial robots;

To purchase and promote research -- through the government can directly purchase industrial robots to promote the management of Chinese enterprises to provide technological innovation capacity;

Resource integration Policy orientation -- give full play to the promoting role of the government in accelerating the development of industrial robot industry

6. Conclusion

To sum up, this project aims to “lease” government procurement on the basis of the new model development and building a robot supplier sales, system integration solutions, robot application enterprise automation upgrade online diagnosis, robots, robot engineer training, enterprise to provide “five one” the personalized demand of industrial robots comprehensive online service platform. This paper aims to solve the problems of dispersing resources and information, low density of industrial robots, low application level, narrow range and lack of professionals in the domestic industrial robot industry. Integrate innovative resources, improve technical competitiveness, and provide targeted solutions and specific implementation measures for enterprises with technical problems in robot products, so as to enhance the overall core competitiveness of domestic robot enterprises. Accelerate the pace of China's industrial robot development. The process from production to assembly to sales and then to use in China's industrial robot industry will be orderly linked together.

Although there are many areas that need to be learned and improved in the current project, the actual project operation effect remains to be observed. However, in the following time, in terms of technology, we will constantly raise and solve problems, constantly compile and improve the platform implementation plan, strengthen the control of technology and quality, and accelerate the transformation of project results. In terms of personnel, we will gradually standardize personnel management, improve service attitude and service quality. Build a cohesive project team. Try to hand in a satisfactory answer paper.

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