

AI vision fresh scale - fresh product identification, weighing and payment machine design and financial statement analysis

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Abstract

How to make offline retail closer to online, so as to reduce the labor cost and operating cost of offline retail in e-commerce, and give full play to the offline role of e-commerce is the primary focus of this work. Now based on commodity identification technology, the use of artificial intelligence technology, to create a fresh AI visual scale - fresh product identification weighing payment machine. On the one hand, the shopping process is simplified and the weighing link is reduced. On the other hand, users' shopping data can also be collected so that users can directly connect with merchants and provide data support for optimizing the supply chain. This paper focuses on the idea and financial analysis of the project. AI fresh vision and traditional cash register connection, not only to achieve intelligent silver, said the integration, greatly reduce human and material costs, and improve the sense of consumer experience, improve the offline operation efficiency, promote the retail operation upgrade.

Keywords

Internet technology, Accounting, Financial Statement Analysis, AI recognition.

1. Introduction

In recent years, with the rapid development of Internet technology, "Internet plus" has become a necessary means for people to implement e-commerce. The increasingly mature Internet technology has gradually penetrated into all aspects of our lives, and its advantages are obvious. The Internet of Things has promoted the multi-dimensional development of e-commerce to a large extent and brought new vitality and new trends. Moreover, big data can be used to obtain and retrieve information more accurately, quickly and comprehensively, which has become a necessary means to effectively help and promote the development of e-commerce. Our AI fresh visual identification scale first needs the product input of Internet item identification, and then sells, and finally analyzes according to the data of sales, so as to achieve online access to customer preferences, businesses directly connect to customers, and the management can implement more accurate decisions. In addition to technological progress, AI recognition technology is more and more perfect, product identification technology is more feasible.

The AI fresh food visual scale has been used in some supermarkets. It saves the process of "bagging, weighing, sealing and labeling" in traditional supermarket fresh shopping, saving huge manpower, material and financial resources. The AI fresh food scale is indeed innovative, but it still shows some shortcomings in the process of use.

First of all, it has the problem of the accuracy of the identification of similar products. The visual scale adopts AI intelligent recommendation technology. The identification of products with similar appearance poses a certain degree of challenge to the algorithm. For those products of the same variety and different qualities, This challenge is even more difficult.

Secondly, for most supermarkets, traditional bar code scales and electronic scales can still be used, replacing AI visual scales means new expenditures, and the initial cost required for large-scale replacement is a big challenge for the cash flow of enterprises, and it is also a problem for the common use of AI visual scales.

Combining the characteristics of artificial intelligence technology and the price of existing materials, our team is committed to creating an AI fresh vision scale with higher accuracy and lower cost. The AI fresh visual scales can minimize the commodity identification error, because of its lower cost advantages to get more market opportunities, and USES the "C2M" e-commerce Internet business model, and by collecting consumer purchases of different types of goods, timely reflect to suppliers, so as to adjust the supply of different commodities. This is not only convenient for residents' shopping and life, but also can adjust the supply of goods to avoid unnecessary waste.

With AI fresh visual scale as the basis, to create the combination of digital economy and real economy, the use of AI visual recognition technology to simplify the fresh shopping process, to achieve the effect of weighing - payment integration, to provide consumers with more convenient shopping experience:

1. Identify the type of goods and weigh and calculate the amount, simplify the consumption process.
2. "C2M" mode collects consumers' shopping conditions, analyzes data and adjusts commodity supply.
- 3, save material and personnel costs, avoid unnecessary spending.

The main technology of AI fresh food visual scale is AI visual recognition technology, which can quickly and accurately identify different commodities according to the algorithm, and calculate the amount according to their weight and then collect the payment, so as to avoid the situation of consumers queuing repeatedly, and provide consumers with It provides a better shopping experience; at the same time, the data collection function of the AI fresh food visual scale can maintain a relatively balanced state of supply and demand, which not only reduces the useless overhead of supermarkets, but also avoids a lot of waste of goods.

2. Profit Model and Operation Model

2.1. Profit model

2.1.1. Direct sales model

The difference between the unit cost of research and production of AI fresh food visual scales and the unit product quotation provided to each platform after deducting platform commissions and related taxes. The direct selling model is the simplest and most direct way to make money, and this profit model exists in almost any industry. Direct selling can be divided into online online sales channels (mainly) and offline electrical supermarket sales channels (supplemented). The direct sales model of online network sales channels is represented by Taobao and JD.com, which is platform-based. The network has no borders, and the direct selling model mostly adopts a platform-based approach. The merchant (our side), the customer, the platform side, and the three-party cooperation and common profit are the characteristics of this type of model. In this process, we, as a supplier, naturally have to pay a certain commission to the platform. On the basis of reducing the cost of inventory, stores and personnel, the network also reduces the price, but the price reduction is not the standard of lowering Wumart. The online direct selling model must ensure the quality of the goods. Offline sales can cooperate with Gome, Suning, Sanlian and other electrical appliances sales supermarkets. We must create an integrity mechanism and a closed-loop sales in offline sales.

2.1.2. Direct sales model

The difference between the annual depreciation amount of the intelligent equipment of AI fresh vision scale and the annual rental fee to the supermarket. The biggest characteristic of AI fresh intelligent scale leasing relative to purchase is low price. We mentioned before that the purchase will cost the supermarket a lot of money, while leasing is just the opposite. Short-term equipment leasing can save a lot of money for the supermarket, and the initial experience. Many problems faced by the purchase of it can be solved perfectly, it does not need too much maintenance work, after the expiration of the contract to replace it has greater flexibility. In the lease term of office equipment problems can contact the business (our suppliers) to deal with. However, when leasing, we, as the supplier, will charge part of the deposit. If artificial damage is found when the equipment is recovered, and it is not the problem defect of the equipment itself after verification, we will make part or even all of the deposit detention according to the damage situation.

2.1.3. Profitability of property rights

The difference between the unit cost of applying for patented intellectual property rights and research and development equipment and the unit cost of other companies purchasing our property rights after deducting the relevant handling fees for the AI fresh visual scale. Property rights are the ownership, possession, control, use, income and disposal rights of property. The purchased patent must first be an announced patent before it can be purchased. It can be announced on the intellectual property website or applied through the Patent Office. The purpose of registering a patent: one is to protect the right to use the patent; the other is to allow more companies to purchase this patent to gain benefits for the enterprise. If the promotion and marketing of the AI fresh food intelligent scale allows more rational people to see its profits, there will be capital and market to buy the patent of the AI fresh fresh visual scale.

2.2. Operation mode

2.2.1. Technology research and development layer - the "engine" of the enterprise

The technology research and development layer mainly includes two important parts namely research and development personnel and after-sales maintenance and upgrade personnel. The technology RESEARCH and development layer mainly consists of undergraduate or master students majoring in computer, electronic information, automation and mathematics. AI fresh acquisition integrated visual scale as a new innovative equipment, technology research and development layer is the most basic and the most critical part. Technology r & D layer is not only the charge of developing equipment, but also the backing of after-sales maintenance and upgrading. The main responsibilities of the technology research and development layer: to provide technical support and guarantee for the production of AI fresh intelligent scale, to provide technical support and guarantee for the sales of AI fresh intelligent scale, intelligence collection, analysis, processing, analysis, technological innovation, new product development, production process and product quality monitoring, personnel technical training.

2.2.2. Executive management - the "hub" of the enterprise

The functions of administrative management mainly include: enterprise planning, decision-making, management, supervision and assessment; Employment, appointment and removal of personnel and related personnel management; Public relations and corporate image promotion, related social activities; Build and form enterprise spirit and culture. AI fresh intelligent scale enterprises should have a warm office environment. With many people and many affairs, the environment is particularly important. A good office environment can also make employees feel "at home" and work more comfortably, ensure that the administrative work is carried out in an orderly manner and improve the operation efficiency and management level of the whole company.

2.2.3. Fund management - the "lubricant" of an enterprise

The capital management is mainly responsible for routine financial work; Management, supervision, guidance, assessment and early warning of the use of funds; Financing and capital introduction; Production and operation cost accounting and assessment. Among them, the most important is financing and attracting capital and the rational use of capital. In order to get the attention of investors, the capital management of AI Fresh intelligent scale must tell a good story, and the business model is clear. The business model should also follow the trend. Market conditions, policies and competitive products are all the background for success. Business cannot be separated from the environment and the social scene. Capital management must leverage their own networks, capabilities, and the value of the project itself to raise money and attract capital. Only with this part of precipitation funds, the project has the possibility of implementation.

2.2.4. Production layer - the "core" of the enterprise

The main responsibilities of the production layer are: production organization and management; production personnel management and assessment; production cost management and assessment; inventory management; external processing management and testing; product testing, quality assurance, and quantity inventory. The production layer should take the automated production line as the ideal goal and strive for it. The ideal goal of producing AI fresh food weighing integrated vision scales is: quality, efficiency, cost, safety and innovation.

2.2.5. Sales layer - the "leader" of the enterprise

The sales layer in this enterprise is mainly manifested as the official flagship store direct sales. Online sales should match dedicated customer service personnel to each platform, because the AI fresh food collection and weighing integrated visual scale product is an artificial intelligence product, and some special functions and system settings need to be explained to consumers by internal personnel. Customer service staff also receive specialized technical training.

3. Analysis of main statements and financial indicators

Based on the financial statement data, the operating capacity, growth capacity and profitability of the enterprise can be analyzed according to the financial analysis tool, and the prospect of AI fresh vision scale can be preliminarily judged.

3.1. Important report data Prompt (unit: yuan)

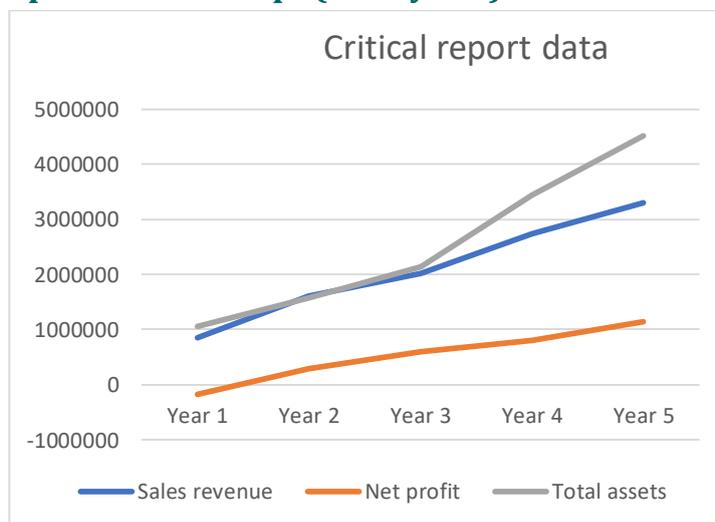


Figure 1: Important report data

From the change trend in Figure 1, it can be seen that the company's sales revenue, net profit and total assets within 5 years have all shown an upward trend. In the second year, the company began to make profits. In the fifth year, the company's net profit exceeded 1 million yuan, and its total assets reached 4.5 million yuan. However, the growth rate of net profit is smaller than the growth rate of sales revenue, indicating that the AI fresh visual scale needs to control production costs and period expenses in production.

As the AI intelligent visual scale gradually expanded to second-tier cities in the third year, and increased investment in data analysis, and provided precise services to consumers, the sales revenue increased in the third year, and the growth of total assets became a turning point. The fourth year and fifth year net profit Steady growth.

3.2. Operational Capability Analysis

The main function of the operating capacity ratio is to measure the performance and efficiency of the enterprise in various business operations, and to reflect how the enterprise uses the efficiency of resources to achieve the level of sales in the entire business activities. The indicators that reflect the company's operating capabilities generally include accounts receivable turnover ratio, fixed asset turnover ratio, and total asset turnover ratio. Higher operating indicators reflect the company's strong asset operation capabilities. The accounts receivable turnover ratio is a ratio that reflects the turnover rate of the company's accounts receivable. It shows the average number of times a company's accounts receivable are turned into cash during a given period.

Table 1. Accounts receivable turnover rate of AI fresh vision scale in five years

project	Year 1	Year 2	Year 3	Year 4	Year 5
Accounts receivable turnover	24.76	16.62	13.98	14.19	13.29
Fixed asset turnover	13.80	48.34	447.34	19.06	42.79
Total asset turnover	0.81	1.02	0.94	0.80	0.73

From Table 1, it can be seen that the turnover rate of accounts receivable within five years of AI fresh food visual scale is between 10-25, the recovery period of accounts receivable is between 15-36 days, and the recovery speed of accounts receivable is faster, which can save money Working capital is conducive to the operation of funds.

The turnover rate of fixed assets reflects the use efficiency of enterprise fixed assets in the business process. The turnover rate of fixed assets in the first two years of AI fresh vision scale is between 10-50. In the third year, due to the depreciation of fixed assets, there is only residual value, so the change of fixed assets turnover rate does not conform to the rule. In the fourth year, the turnover rate of fixed assets increased year by year after the purchase of 203,000 yuan of assets, indicating that the recovery of fixed assets was slow in the early stage of operation. With the expansion of AI fresh vision scale, the recovery period of fixed assets was shortened. The total asset turnover rate reflects the efficiency of an enterprise's utilization of assets on the whole. The higher the ratio is, the greater the efficiency of an enterprise's investment will be, and the profit rate will rise as a result. On the contrary, it indicates that the degree of asset utilization is not high, and the benefit of investment is poor. Through the analysis of total asset turnover, we find that the total asset turnover of the company is between 0.7 and 1.1, which is relatively stable.

3.3. Profitability Analysis

3.3.1. Profitability

It is the ability of a company to earn profits, reflecting the profitability of an enterprise index, mainly including gross profit margin on sales, net profit margin on sales, return on investment, return on net assets.

3.3.2. Gross profit margin on sales

Analyzing the gross profit rate of sales can understand the profitability of the enterprise. The higher the gross profit rate, the stronger the profitability of the enterprise. The high gross profit margin also means that the company has the ability to face the pressure of competition, especially in terms of price competition, and can carry out price-cutting competition in order to stabilize or strengthen the original market.

AI fresh vision scale gross margin basically maintained at about 93%, indicating that the company's profitability is very strong, in the face of market competition pressure, can occupy a certain advantage.

3.3.3. Net profit margin on sales

Net profit margin on sales is an important factor to judge whether an enterprise is profitable or not, and it also reflects the efficiency of an enterprise in business. The higher the ratio, the stronger the profitability, and the lower the ratio, the weaker the profitability.

AI fresh vision scale sales net margin from negative growth to 35%, profitability growth faster. Return on investment is a comprehensive index to measure the profitability of enterprises. Return on equity (ROE) is the compensation that the owners of an enterprise get for the efficiency of their operations. Higher ROE can attract potential investors to expand the scale of enterprise operation. In the first year, due to the high cost of market development in the initial stage of operation, poor public familiarity, low promotion, and low usage of AI fresh vision scale, the net profit was negative, thus making the return on investment and return on equity of the company both negative. After the second year, the company maintains a high level and an increasing trend, indicating strong profitability of the company.

3.4. Growth ability analysis

Table 2. Main business revenue growth rate and net profit growth rate.

project	Year 1	Year 2	Year 3	Year 4	Year 5
Business revenue growth rate	—	88%	26%	35%	20%
Net profit growth rate	—	267%	106%	35%	43%

The growth capability of an enterprise is the ability to continuously increase its asset size, profitability, and market share with changes in the market environment, reflecting the future development prospects of the enterprise. The main indicators for evaluating the growth capability of an enterprise are: the growth rate of main business income and the growth rate of net profit.

As can be seen from Table 2, the growth rates of main business income and net profit of AI fresh vision scale both maintain a high level, and the main business income and net profit both maintain a growing trend. In the first year, the growth rate of main business income is as high as 88%, and it remains above 20% for four consecutive years. In the second year, the net profit increases exponentially. Reflects the company's outstanding business performance, strong market development ability, has broad prospects for development.

3.5. Solvency analysis

Solvency ratio is divided into liquidity ratio and structural ratio. Liquidity ratio mainly includes current ratio and quick ratio, while structural ratio mainly includes asset-liability ratio, long-term debt ratio and equity ratio. Generally, the liquidity ratio is greater than 2 and the quick ratio is greater than 1, indicating that the liquidity of the current assets is good and the solvency is strong.

Table 3. Solvency ratio of the company

project	Year 1	Year 2	Year 3	Year 4	Year 5
Current ratio	7.80	8.50	9.47	10.84	12.56
Quick ratio	7.80	8.50	9.47	10.84	12.56
Gearing ratio	0.12	0.11	0.11	0.23	0.19
long-term debt ratio	0.00%	0.00%	0.00%	14.52%	11.06%
Equity ratio	88.11%	88.57%	89.49%	76.64%	81.12%

As can be seen from Table 3, the current ratio and quick ratio of the company are above 7 every year, indicating that the company has no problem in the ability to pay short-term debts and the company has little debt repayment risk. However, the current ratio and quick ratio of the company in the last two years are too large, indicating that the company did not effectively use its current assets, which needs to be improved.

Asset-liability ratio, long-term debt ratio and equity ratio can clearly reflect the degree of risk existing in the repayment of long-term debt. The higher the ratio is, the higher the risk of foreign debt will be. It can be seen from the table that the asset-liability ratio indicates that the total assets of the company are much higher than the total liabilities, and the long-term debt ratio indicates that the value of the assets of the company is much higher than the total long-term liabilities. All these indicate that the company has no difficulty in paying long-term debts and has little financial risk. The equity ratio shows that the majority of the company's capital is provided by shareholders and retained earnings, and the company's financial position is quite stable.

Overall, the company has no problem in repaying its liabilities, and the company's financial risk is very small.

4. Conclusion

(1) The company has good solvency and liquidity ability, low debt risk, and the stable asset-liability ratio indicates that the capital structure is relatively stable and the company can develop sustainably.

(2) Each turnover rate is relatively high, the number of turnover is fast, the company has high asset liquidity, smooth capital turnover and good operation capacity.

(3) The company began to make profits from the second year, and the gross margin remained above 90%, showing a stable trend, showing strong profitability. And the company has a stable growth trend, which can effectively enhance the company's development momentum and the confidence of creditors and shareholders, and can attract potential investors to expand the business scale of the company.

(4) The cash flow of the company is stable and in a state of continuous growth. The company has sufficient net cash flow to ensure the normal operation of the company for a long period of time.

(5) The product market has huge development potential. With the expansion of the enterprise scale and the increasingly stable development, the company will optimize product research and development, sales, human resource management, finance and other aspects to maintain the current good situation. At the same time, the company will consider increasing investment.

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