



Alpha Industrial Technology Pty Ltd

Intelligent Mining Solutions and Manless Remote
Control System

Agenda

- 1. Company introduction
- 2. Mining safety situation and development direction
- 3. Product technology and its application prospect
- 4. Management and development planning



Company introduction

- 1. Company profile
- To comply with the "wireless communication technology, the concept of digital mine, in order to improve the safety and efficiency of production as the core, Alpha Industrial developed five series of products:
 - Wireless remote control system for mine
 - Mine equipment intelligent on-line monitoring system
 - Mine safety monitoring system
 - Mine wireless communication system
 - Intelligent digital mine professional solution



Mining safety situation and development direction

- 2. 1 Disadvantages in traditional mining
 - Automation, intelligent mining technology is relatively backward, poor production conditions
 - Mining environment deterioration, safety awareness is weak, inadequate investment in safety production
 - Advanced equipment, inadequate promotion, labor efficiency is not high, high labor intensity of workers. The key parts for many people, mechanization, low degree of automation, Qunsiquan Shang accident risk.



• 2. 2 Security situation and development direction

- Mine enterprises throughout the production process is accompanied by dangerous, the total amount of accidents is still large, serious accidents have occurred, the production situation is still grim.
- Because of the mine under the special working environment, excessive labor intensity caused by occupational diseases, but also life and health of workers, "invisible killer."
- Serious damage to land resources, frequent geological disasters. Mining of mineral resources at the same time, often accompanied by the destruction of the natural environment
- Ecological deterioration, affecting human survival.
- Therefore, green mining is the direction of the development of mining, and digital, intelligent mining is the balance between mining efficiency and safety!



Product technology & Application prospects



Remote control unit



Vehicle mounted receiving unit

3.1 Introduction

The wireless remote control solutions which we provide based on WIFI and other wireless communications technology and Canadian mine wireless remote control system security control, strategy for various types of large-scale mining machinery. In the line-of-sight remote control mode, the operator carries the remote operation unit, and within 100m from the mining equipment, observes the surrounding condition through the eyes and performs remote operation to realize various functions of the equipment.



3.2 Product Features



Model types, rich interfaces to meet the needs of various types of operating vehicles.



Professional vehicle remote control system customization and vehicle modification, fully meet the functional requirements.



Safe production tracking, to ensure that locomotive work in the best condition.



3.2.1 Operating unit

Remote control unit Basic functions:



1

Link establishment: Establish a link with the car unit together



2

Information acquisition: Collects the handle analog information and the key numeral information, transmits to the vehicle carries the unit



3

Work instruction: The indicator light indicates the working status of the system



Safety standard model:
FYF40

Explosion - proof mark:
intrinsically safe Exib I
MFA130295



3.2.2 Receiving unit

Intrinsically safe remote control receiver unit Basic functions:



Link establishment: Establishes the link with the operating unit



Locomotive control: to receive information analysis, the output PWM and digital signals, control locomotive mechanical action



Work instruction: The indicator light indicates the working status of the system



Applications

Main application: shearer, boring machine, mine scraper, mining rig, mining spray truck, mining loader, mining piles, mining truck rocker working environment is relatively poor , Posing a threat to the safety of personal safety equipment.

Expanded applications: excavators, slagging machine, cranes, loaders, concrete machinery, such as shield machine.

Applications: mining, petroleum, railways, navigation, military and so on.



3.4 Performance characteristics



To meet the mining requirements of dangerous areas, to ensure personal safety, conservation of resources, to provide resource recovery and economic benefits.



Wireless remote control is simple, action sensitive and reliable.



Remote control equipment, stable and reliable, maintenance and replacement components are very convenient.



Wireless remote control device using frequency time-division system, wireless signal stability, anti-interference ability.



Free remote control and manual switching function can be used for dangerous areas for unmanned ore, but also to meet the normal use of the normal stope.

3.4.1 Application of wireless remote control system for 1 m³ electric scraper

1



2



Wireless remote control system in a mining company 1 cubic electric scraper on the successful conversion debugging. In the same year in November and an additional two, now underground use in good condition!



3.4.2 Application of Wireless Remote Control System of 2 m³ Scrapers

1



2 m³ scraper system in a mining company commissioning operation, successful operation in May, the same year in October to add two remote control system.



3.5 Practical Application of Wireless Remote Control System for Shotcrete

1



The development of wireless remote control shotcrete debugging successful



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3.6 Practical Application of Wireless Remote Control System for drilling rig



September 2015, with the Jikai Equipment Manufacturing Co., Ltd. to develop, configure the remote control system for the rig.



3.7 Other Applications



Remote control crawler loader



Remote control loader



Remote control boring machine



Remote control shearer

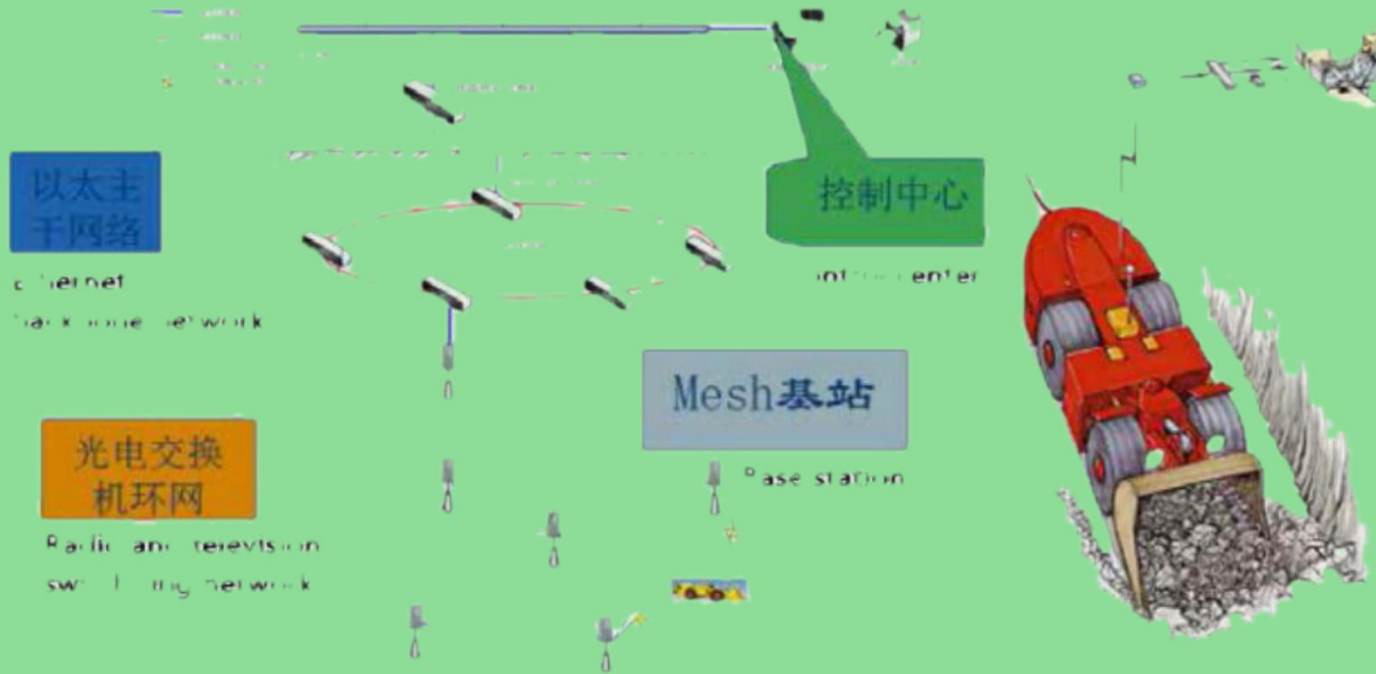


Long - range wireless remote control system



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3.8.1 System composition



- Monitoring center
- Basic function of monitoring room:
 - Job environment display
 - Mechanical operation control of locomotive
 - Work record and query
 - Job status indicator: indicator light indicating system operating status

Remote control function



1

Navigation learning

Road learning before navigation

2

Memory work

According to the learning path to work

3

Driving record

Record traffic parameters

4

Manual intervention

Manual adjustment navigation



5

Status indication

Indicator light for danger and stop alarm



3.8.2 Application of the System



Test of Autonomous navigation system

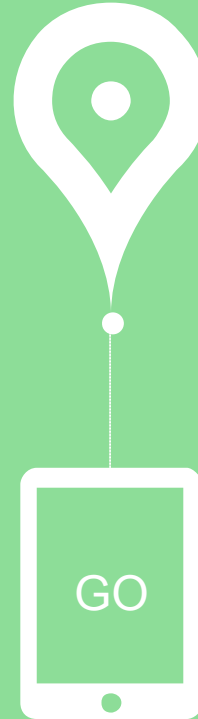


3.9 Application prospects

Intelligent mining will bring far-reaching impact



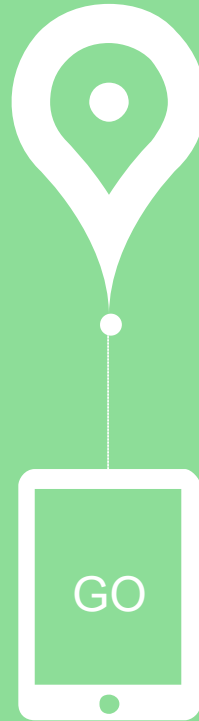
1.The realization of the mining indoor-operation can solve the safety problem of mine production to the greatest extent, especially in the case of deep mining of metal mines, a large number of miners will stay away from the high temperature and bad environment of rock burst.



2.The realization of the production process remote control. Underground workers will be greatly reduced, thereby greatly improve labor productivity, reduce ventilation costs, greatly enhance the competitiveness of the enterprise, especially for deep mining is of great significance.

3.The intelligent degree of the mining process, can realize large-scale mining. The mine production capacity can be greatly improved, the work efficiency is high, the cost will be substantially reduced, low grade deposit could be fully utilized.

4. Implementation of team knowledge. Due to the transition from the traditional industry to the knowledge industry, greatly improve the technical quality of staff, team structure and salary will be greatly improved, the miners vulnerable groups social status will change radically.



5. Promote the comprehensive upgrading of the mining industry, which can make the metal mining industry to achieve leapfrog development, will also promote the country's information industry, machinery manufacturing and other related industrial chain extension and development

4. Management and development planning

Alpha focus on research and development direction is to improve the "one test two remote control" technology products , at the same time, followed by "mechanized substitutions, automation of people" requirements, to further improve the digital and intelligent mining technology research, has introduced the industry trends , Is committed to customers and partners to provide more secure, more rapid and more efficient products and services for the mining of intelligent development.





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THANKS!