

parts to input, but you have to ensure alignment of each part. Digitalization of the mine map drawings by digitizer is actually to input drawing points in the map then calculate the selected set of points, finally to fit and draw the graphics object by different ways. This method is suitable for all kinds of mine map digitization, it is economic and applicable, but need people's closely coordination, and relatively slow speed

D programming drawing

programming drawing is the automatic drawing program with computer language programming, after the original data are input computer, automatic drawing will be formed. Because the coal mine map is a kind of complicated engineering maps, map content is complex and time-varying, it's difficult to use programming method to draw, for the stable engineering standards, and automatic programming can be used.

Software development language of programming include AutoCAD and Auto LISP language, you can also use C, VB, Delphi.

Some mine ground measurement system which is based on borehole and measuring point coordinate automatic mapping system, but the system has low function to identify and treat the boundary conditions, and it isn't applicable for complex geological conditions, it can only be used for simple condition of mine. Programming automatic drawing method is simple, but development of the special software is difficult, high costly and expensive, the cost of the early development and purchase is 20 - 300000 Yuan. The recommended method is to build gallery included original mine drawings, when the drawings are used, they are called according to the similar condition, finally according to the actual conditions, and partial modification will be made.

E mining design CAD

Design of coal mining is the regular work, design covers all aspects of production mine. Mining design includes: ① design, such as the development of plan design and other design; ②the professional design, such as the ventilation system, transport, electrical and mechanical design; ③ engineering design, such as the construction and design of bottom, roadway, intersection, copper chamber. These three designs need to use AutoCAD directly, but the drawing techniques and methods vary.

1) Program design

Design of mining is mainly on the contour map, in another words, planar graph is formed by arranging a mine tunnel contour diagram layout, chamber, surface mining, coal pillar boundary line, line on the contour map. Profile is drawn according to the drilling data, the comprehensive geological data, and based on histogram, a planar graph contour according to a survey line or artificially imposed section of line, and added with the roadway and other content. That is to say, the main steps of these kinds of drawing mine map are: according to the design draw the suitable proportion of the contour map, according to a profile contour drawing, final layout design. This kind of mine map includes: various kinds of mine flat, profile map.

2) professional design

This kind of ore drawing ventilation system has circuit diagram of hydrological geology, underground transport system, underground power supply system, drainage system, mechanical and electrical equipment layout, piping arrangement system, communication system, safe escape. These drawings is characterized in mine basic drawings on the basis of the corresponding increase professional primitives and reduce or omit basic drawing in excess and the formation of special drawing.

This drawing is relatively simple, based on the original image you can modify into a graph by increasing and deleting content, but you need to create the special library.

3) Construction design

Mine construction mainly includes the bottom line layout, roadway sections, cross point construction drawing, copper room construction plans. This kind of ore drawing must be accurately plotted rules construction plan according to the sizes; it should have accurate size, content complete, detailed description and the comprehensive marking, etc. This kind of design is generally in proportion to 1:1 design; it requires calculation, measurement, and draw at the same time. After the design is completed, the map will zoom into the map scale, then the dimension, add text, and finally print out the charts.

Computer aid design and drawing make the speed of graphs much faster than manual drawing, can save time and effort over 2/3 [4]

IV. conclusions

mine map has professional characteristics, such as variety, complexity, changeful, strong repeatability. Mining map digitizing is much more complicated than other industry; we should adopt comprehensive digital processing technology, according to different types of the drawings, the reasonable method for digitizing method should be chosen. There are mainly 5 kinds: ① manual input; ②the image scanning; ③ digitizer; ④ programming drawing; ⑤the mining design CAD. One of the fastest and most economic methods is the image scanning, mining design need to purchase or develop mining standard library.

New technology of mining map digitizing solve the traditional ore drawing and mining design problems, it's the basic construction of mining enterprises to establish digital resources and application system. We must make greater efforts to promote the application of this new technology. Mining map digitizing software platform choice is crucial, we must be careful.

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