Laser-Scan
The FASTRAK Digitizing System
A feature has been selected, digitized and highlighted.

A feature is coded by a number in sequence. Features are sequentially numbered, but this sequence can be changed by the operator if required.

FASTRAK Automation has been making its presence felt in cartography for many years. Automated cartography cannot fulfill its promise as long as the predominant method of creating digital data from graphics remains the laborious and error-prone technique of manual digitizing.

Laser-Scan's FASTRAK solves the problem. By combining laser technology and powerful computer software in the automatic following and measuring of cartographic linework it has dramatically increased the speed and accuracy of data capture. It is not a black box system, such as the large scale raster scanning devices. The philosophy of FASTRAK is an interactive one and the operator is an integral part of the system. Freed from the hard and tedious task of line measurement, he can devote his skills, intelligence and energy to an interactive role, responding to cartographic problems.

Performance

The effect on throughput is dramatic. Average rates of 500 line inches per hour (12.5 metres) are achieved on contour and culture type maps. As this output is fully coded and edited, this speed represents the average output of 10 manual stations. The accuracy of output is consistently high, thereby minimizing post-process editing requirements. Graphical data is captured directly in feature coded form and these features can be structured into overlays if required. This means that both the capturing and classifying of cartographic data are achieved in one process.

Operation

The FASTRAK total system is designed for operator convenience and satisfaction. The work document is shown on a large display screen of drawing board size and all through the digitizing process a trace shows the progress of events as they happen. Interaction with the system and display is by simple function buttons and console commands. There is a cumulative check on digitization progress. Each time a feature is captured it is removed from the operator's display. This 'painting out' removes any possibility of repetition or omission and gives the operator an immediate and continuous graphic check of system accuracy. These facilities mean that only very clean data is collected. Any minor additions or corrections can be made at a later stage using the Editor program.

Data processing

FASTRAK samples the graphical data at a very high resolution. Special data reduction techniques ensure that only the points which will define the feature are stored, thereby keeping data processing and storage costs under control. The data reduction parameters can be changed by the operator to meet particular user requirements. Quality control costs are also reduced since many of the tedious error checks which have to be performed on manually produced data simply do not arise.

System integration

The post-processing and data formatting software is designed to facilitate interfacing directly with data base structures. The flexibility of the formatting programs enables FASTRAK to be integrated gradually into the cartographic production system, eventually fitting exactly where the maximum benefit is derived. Since FASTRAK and the manual systems have the same philosophy, the derived benefit can be both improved operator utilization and better primary production, especially where there are both conventional and automatic systems, and both digitizing and editing work programs.

FASTRAK is a self-contained system with its own mini-computer. The large display, almost a metre square, is used for data capture, editing and updating. Automatically, at the press of a button, it will also produce
Above
The original contour map, 20" x 20"
(500mm x 500mm), was fully digitized under
test conditions by an inexperienced operator
in under 3 hours.
This fiche check plot was drawn in under
120 seconds.
a very fast proof plot on diazo fiche film. A
viewer, or viewer/printer, will then save the
time and cost of a proof plot on conventional
equipment.
FASTRAK provides data capture, proof
plotting, editing and updating. With it,
production managers can meet the demand
for more information faster, without needing
more equipment and staff each of which has
its own brand of cost escalation.
If you have to meet a major cartographic
production requirement you cannot afford to
be without FASTRAK.
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Laser-Scan
FASTRAK
The Automatic Line Following Digitizing System for Cartographers