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JNR Passenger System

From around 1956, Mitsue Ito, Yutaka Ohno, and Yasuhiko Tani carried out a study on the introduction of electronics into seat reservation systems and completed the seat reservation system MARS-1 in 1960, and this was immediately put into practical use. From 1961, they worked on the development of MARS-101, expanded to a nationwide scale, and completed it in 1964, following which MARS-102 was added; from this, the JNR seat reservation system was established. In Japan, MARS-101 was the first case of real-time response by a computer and MARS-101. In Japan, in terms of the size and performance, MARS-102 was a pioneering system of an online real-time information processing system.

Then, Masanori Koseki, Yoshiro Hayashi, and Yasuhiro Fuwa developed and put into practice the world's largest comprehensive passenger ticket service system along with the opening of the Hakata Shinkansen. This system consisted of three systems: 1) booking reserved seat tickets targeting individual passengers (MARS-105), 2) booking reserved seat tickets directly from NTT push phone (MARS-150), and 3) booking the reserved seat tickets targeting group passengers or tourists (MARS-203). Original technology was developed for each system.

(Explanations above were summarized and excerpted from the excellent study database (<http://abnst.nii.ac.jp/>).

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Universal Bill Validator Adaptable to World Markets

In order to realize reflux ATM and to spread it overseas, Hiroshi Sakao, et al. developed a universal bill identification system capable of adapting to different operating circumstance (diverse bills such as fake notes and deteriorated bills) in various countries, and realized the mass production of a system with this bill identification module. This universal bill identification system had a built-in universal algorithm which was able to process statistical identification about the two-dimensional information from plural sensors such as visible light/infrared light sensors and magnetic sensors by automatically selecting the features to focus on through machine learning, in addition to a compact feeding device which was able to stably handle a large number of notes for a long time. Features of this system were as follows: highly accurate function for detecting fake notes, function for detecting tears on notes, a function for measuring the thickness of notes, a function for detecting note with aged deterioration or oil spots (Euro standards Article 6), and a function tracking specific

bills (Euro standards Article 6).

Furthermore, it typically took several months to develop an algorithm for each country, however, thanks to the universalization of the identification algorithm and automatization this was reduced to 1/10 of the time, allowing it to be handled within three days. Because of these technologies, it was adaptable to 30 countries overseas and 200 currencies or more, and now it retains the top market share in China as well as Japan.

(Excerpted from the website of the Okochi memorial technology award. URL:

http://www.okochi.or.jp/hp/gyoseki55_6.html)

ATM: Automatic Teller Machine