

Development of Efficient Experimental Database System for Steel Manufacturing Industries

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Experimental data in steel manufacturing industries are essential for a researcher to make new steel products. However, these data are usually kept only in the computer of the researcher who designs the new material concept. By this reason, the data are not shared well with other researchers and the extreme case is that they may be lost when he/she retires or moves away to other company. Although a physical property database system for the test of steel is well constructed in many forms, we cannot find an experimental database system yet. Since a researcher should accumulate experimental data generated from the researcher's unlimited creativity instead of test data with predefined conditions and outputs, it is very difficult to construct the experimental database system considering various kinds of experiments carried out in steel industries. To solve these problems, we design an efficient experimental database system after standardizing the experimental processes and condition and results of the experiment. We also design job order system which notifies conditions of the experiments to the experimenter after the researcher enter the history of the specimen including melting, rolling, heat treatment, plastic deformation, physical property experiment, and analysis experiment easily. We develop a pilot experimental database system to realize these concepts well and will upgrade the system to operate in real research process by considering requirements of the users. By using the system, researchers can accumulate their own experimental data in the central server and search the shared data of other researchers. Ultimately, they are able to utilize the data to speed up the rate of making new steel products by designing the conditions of various experiments efficiently without doing the previously conducted experiments again.