

HAZOP automation using artificial intelligence

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HAZOP (Hazard and operability study) is a qualitative analysis technique that identifies the hazards and operability problems present in the plant facility process. Experts with knowledge and experience of the target system participate and perform HAZOP studies based on engineering drawings and empirical rules. However, the completeness of HAZOP results depends on the knowledge, experience, and level of training of practitioners, and human error is likely to occur because it is a human-centered process. Therefore, this study aims to produce consistent and standardized HAZOP study results based on given input information. In this study, engineering drawings are digitized into graph data form using AI-based drawing recognition technology and knowledge is organized into rule and case-based models to integrate them into one system topology. In this course, process and plant safety (PPS) domain knowledge is embedded within the topological model.