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(57) Abstract :
The invention discloses an AI-enabled framework for real-time speech recognition systems comprising an input audio module (101), preprocessing unit (102), noise reduction unit (103), feature extraction module (104), deep learning recognition engine (105), language model integration (106), semantic interpretation module (107), and output interface (108). The invention ensures low latency, high accuracy, multilingual adaptability, and contextual understanding. Its hybrid cloud-edge configuration enables scalability, while adaptive learning improves over time. Applications include transcription services, voice assistants, accessibility tools, and enterprise automation across noisy and multilingual environments.

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