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(57) Abstract :
The present invention discloses a programmable logic circuit device (101) integrated with a cloud sync controller (103), local cache (104), and cloud synchronization module (105) enabling real-time remote access, configuration updates, and diagnostic monitoring. The device allows logic design collaboration, versioning, offline fallback, and secure wireless or Ethernet communication (107). It includes a fault-detection module (109) and is accessible via a web or mobile interface (108). This invention improves hardware usability, flexibility, and reliability for educational, industrial, and embedded system applications.

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