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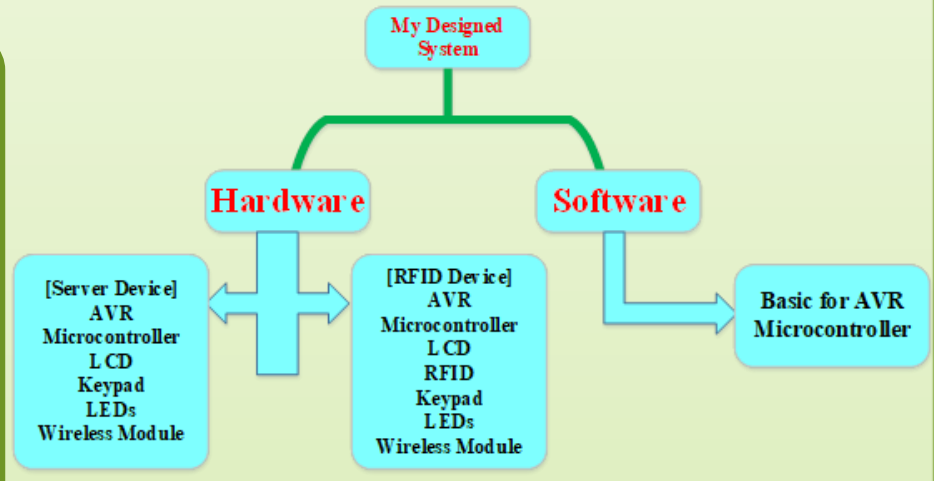
Intelligent Identification System for Industrial Device

Amirhosssein Vafaei, MohammadMehdi Sharifi

The primary objective of this device is to enhance operators' convenience in accessing the specifications of equipment and assets within their work premises and households. Specifically, it enables individuals to establish an identification record for their devices or tools by utilizing an RFID tag. Employing this state-of-the-art device yields several advantages, including mitigation of challenges such as document misplacement, elimination of information-laden barcodes, and facilitation of efficient time and resource management. Moreover, it empowers operators with streamlined access to crucial information, thereby augmenting their operational efficacy.



The presented endeavor comprises a comprehensive system encompassing a transmitter (RFID reader) and a receiver (server). Both pivotal units are powered by the Atmega16 microcontroller, extensively leveraging the BASCOM programming language to engineer their intricate source code.

Transmitter (RFID Reader): Meticulously devised, the transmitter excels in its deployment of an RFID reader adeptly integrated into its rear facade. This astute configuration empowers the device to effortlessly discern the attached tags affixed to the target apparatus. Seamless amalgamation with a character LCD display imparts the capability to showcase the device's meticulous specifications, while judiciously employing a transmitter module to seamlessly relay the obtained data to the server.

Receiver (Server): Exemplifying cutting-edge innovation, the receiver module seamlessly intercepts and assimilates the transmitted data from the aforementioned transmitter, employing an adept receiver module. The acquisition process culminates in the poised presentation of the retrieved information upon a character LCD display, effectively delivering a comprehensive visualization of the pertinent details. Notably, the robust communication infrastructure operates at an optimized frequency of 433 MHz, ensuring swift and reliable data transmission.

Applications

Vital information, including device dimensions, utilized components, latest maintenance activities, and recent inspections, can be stored on RFID tags and affixed to the respective equipment.

By employing RFID tags, specific shelves within the warehouse can be efficiently cataloged and associated with accurate records of the stored items.

In pharmacies, the device facilitates efficient identification and documentation of medicine shelves, ensuring accurate stock management and easy access to medications.

By implementing RFID tagging, museums can effortlessly generate identification records for each item, including detailed descriptions, historical information, and curatorial notes.

Features:

- ✓ User-Friendly Interface
- ✓ Comprehensive Hardware Testing
- ✓ Portability and Mobility
- ✓ Cost-Effective Solution
- ✓ Environmental Sustainability