Routing sheets with reusable read/write RFID tags attached can be updated automatically to simplify data archiving

Application:
Automated manufacturing of products that have many variants.

Handheld RFID with read/write capability. Users can interact with custom applications through display and keyboard.

Goal:
Efficient manufacturing production in situations where there are a large number of variants and error reduction/elimination is desirable. An RFID label is applied by placing it onto the routing sheet, enabling automated, secure reading of the necessary data. Writing data back to the label allows documentation of production steps and their results.

Requirements:
- Low-cost, read/write RFID labels with enough memory capacity
- Fixed, mounted read/write heads plus handheld RFID readers with display and keyboard
- Handheld devices can be programmed to execute custom data handling applications

Customer advantage:
Fixed readers provide real-time information about the status of active manufacturing orders while handheld readers allow human interaction when necessary. Reduction of data entry errors through automated data updates to and from RFID labels.

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What has been done:

Until now, routing sheets were used only once. First the necessary order information was printed on the routing sheet. During the manufacturing process, data recording of relevant information was typically manual (recording of process/test values, handwritten initialing of performed process steps etc.).

The new RFID-enabled routing sheet can be read and written automatically. The production control system can store information according to a predetermined pattern on the RFID label and access it quickly as needed. A custom application running on the handheld reader can access this information independent of where the product is currently located. The application formats the information to be displayed in the most user-friendly form on the handheld reader screen. Quality data, as well as data concerning subsequent processing steps, can then be added to the RFID label. In contrast to manual routing sheets, the RFID-enhanced routing sheets can be reused by simply reinitializing them with the data set for the next product. Since data storage and retrieval is automatic, illegible and contradictory data is not possible. Since fixed-mount readers at all process stations access the RFID routing sheet, system throughput can be determined and bottlenecks identified. The intelligent routing sheet also simplifies and secures recordkeeping for safety-critical items.

Read/write RFID label enhances or replaces traditional manual routing sheets.

The intelligent routing sheet with RFID label increases manufacturing efficiency, allows the identification of bottlenecks, and permits retracing production steps to identify quality issues.