ionidea AI
ENGAGE EXCELLENCE

Case Study | AI, NLP, RPA, DATA ENGINEERING

Automated artwork validation solution for a European medical equipment manufacturer

Problem

The European medical equipment manufacturer faced a slow and error-prone process for validating product labels and artwork.

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Solution

Developed an intelligent automated artwork validation solution powered by:

- **Computer Vision:** To accurately capture and digitize label elements (images, symbols, text).
- **Context-aware Text Analytics:** To interpret text, ensuring it aligns with product specifications and regulatory requirements.
- **Table Extraction and Transformation:** To accurately digitize and reconcile data presented in complex tables on the labels.
- **Data Reconciliation Engine:** To compare extracted label data against a master database of product specifications.

Results

- Dramatically reduced label validation time, from hours to seconds.
- Eliminated the risk of errors associated with manual inspection.
- Ensured full compliance with medical device labeling regulations in the European market.
- Freed up skilled personnel to focus on higher-value tasks.

Technology Stack

- **Computer Vision:** OpenCV, Tesseract OCR, GCP, YOLO or other image processing libraries.
- **Text Analytics:** Natural Language Processing (NLP) libraries (e.g., NLTK, spaCy, or custom-trained models).
- **Data Transformation:** Libraries like Pandas (Python) or equivalent.
- **Database:** Flexible storage to house product specifications (Redis, MongoDB, SQL or NoSQL).
- **Frontend:** Web-based interface for initiating validation and viewing results.

Software Development

- **Methodology:** Agile approach for iterative development and refinement.
- **Focus:** Intuitive user interface with clear error/discrepancy reporting.
- **Compliance:** Built-in adherence to customer product specification master. Govt regulations on medical device (e.g., MDR) can be in-inbuilt into the software.

Before Metrics

Time-consuming manual label validation processes. Potential for costly errors and compliance issues.

After Metrics

Significant reduction in validation time (e.g., from days to seconds).

Increased accuracy, approaching 100% elimination of errors and Enhanced confidence in regulatory compliance.