Team 504: Aftermarket Workflow and Process Creation and Implementation
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FAMU-FSU
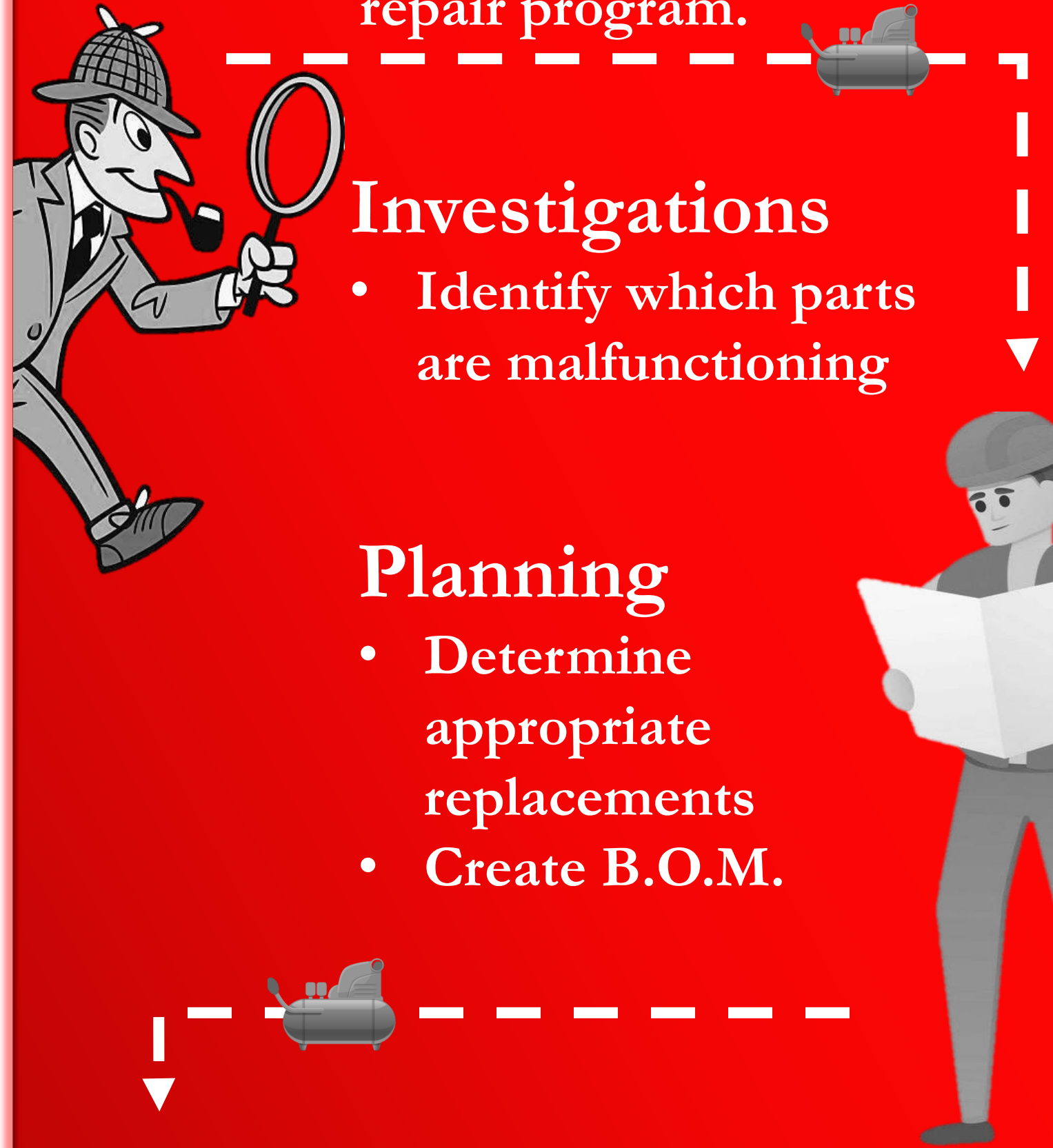College of Engineering

Danfoss

Objective

Design an integrated system that generates a bill of materials (BOM) for a given aftermarket compressor using records provided by Danfoss's investigation and planning team

Background

Danfoss is revamping their aftermarket repair program.

Investigations
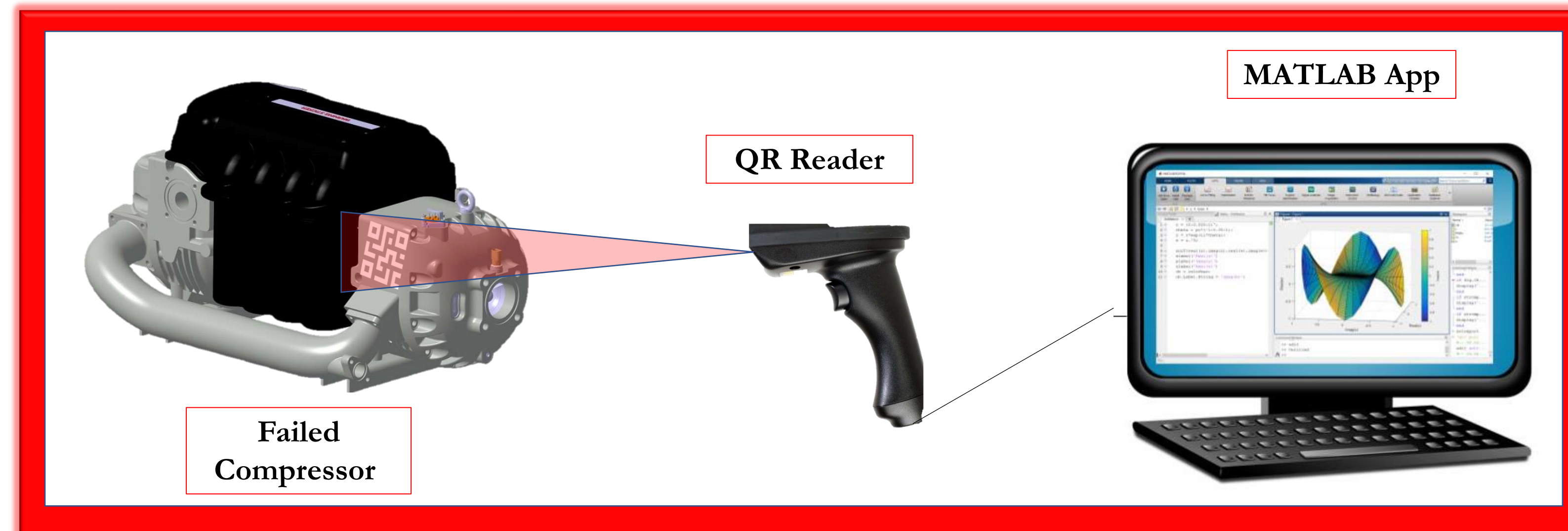- Identify which parts are malfunctioning

Planning
- Determine appropriate replacements
- Create B.O.M.

Production
- Make replacements
- Based off B.O.M.

Final Concept: MATLAB App Designer
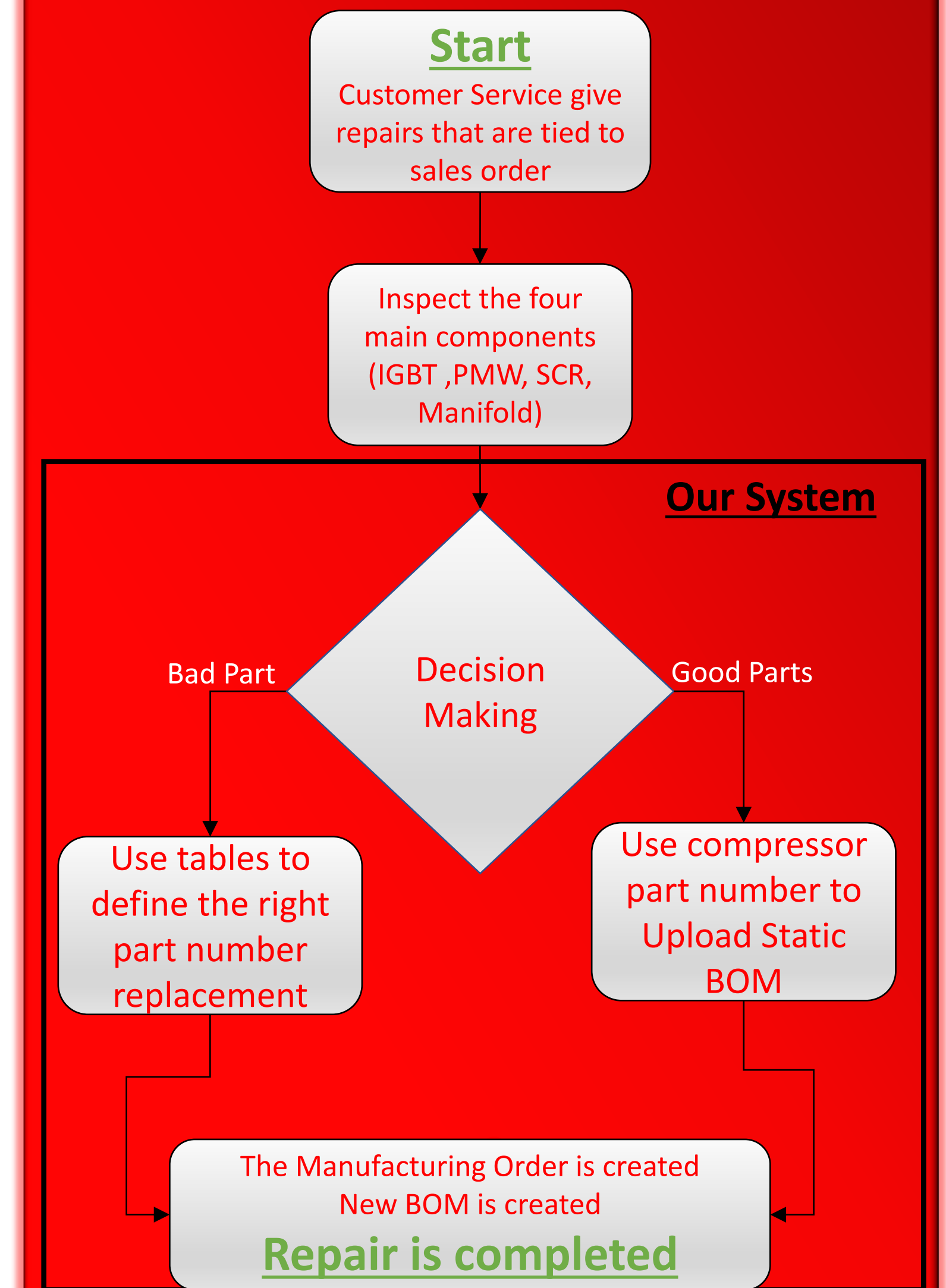
MATLAB App

QR Reader

Failed Compressor

Key Goals

- ✓ Handled by technicians and operators with little to know prior knowledge of compressor parts

- ✓ Automates the planning process to reduce human error

- ✓ Accounts for obsolete part replacements

- ✓ Organizes a list of replacement parts and creates a B.O.M.

- ✓ Streamlines the aftermarket repair process

System Design

🖥 MATLAB app designer GUI

📋 Framework and procedures

👨‍💻 Digitalizes manual inputs

⬇ Input Files

🧠 Logic/Processing

📤 Output BOM

State Diagram

Start
Customer Service give repairs that are tied to sales order

Inspect the four main components (IGBT, PMW, SCR, Manifold)

Our System

Bad Part — Decision Making — Good Parts

Use tables to define the right part number replacement

Use compressor part number to Upload Static BOM

The Manufacturing Order is created New BOM is created
Repair is completed

Preview

MATLAB App

Compressor Inputs

Compressor Type   TT/TG / Mini TT / K-300

Title

Serial Number   0
Claim Number   0

Status	Main Findings	RootCause Concl
Finish	- High gains when calibrated - Damaged forward T/D...	Investigation ongoing. Request for original...
Finish	Customer did not return the BMCC and front sensor...	Without the BMCC returned the root cause...
Finish	- High gains during calibration - Forward T/D bearing...	Unit returned due to severe mechanical da...
Finish	Damaged forward T/D bearings - Failed calibration - ...	Unit returned due to damaged forward tou...

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