Software Engineering Problem

Schweitzer Revision’s System

# Overview

Schweitzer is a company dedicated to the maintenance, sale and installation of refrigeration equipment and spare parts. The most requested service is maintenance, therefore, it is necessary to implement a tool / software that optimizes the scheduling of revisions, whether it is a regular maintenance or an urgent repair. Considering there are occasions when temporary patches are made and technicians due to reasons do not complete the definitive repair.

# Background

We understand by refrigeration system a refrigerating machine and a series of devices that are used to take advantage of the "generated" cold; for those who still doubt about this concept we give as an example the domestic refrigerator, here, its machinery, usually works with butane or kerosene gas and manages to extract the heat from a closed cupboard by transferring it into the kitchen environment with a higher temperature. If we become a little more technical and retailers we must first analyze what is refrigerate ?; we affirm that it is the process of reduction and maintenance of the temperature of a space; to lower the temperature, the energy of one body is extracted, transferring it to another.

Refrigeration systems have many applications: preservation of food, medicines or other products that can be severely affected by heat; air conditioning, here they are used to achieve a degree of thermal comfort suitable for a space to become as livable as possible. Cryogenesis is another alternative, it is also known as cooling at very low temperatures; it is mostly used to liquefy gases or other scientific research; In industrial processes, refrigeration systems are applied to machinery or materials to reduce their temperature and thus ensure their proper development (plastics manufacture, machining, nuclear energy, etc.). The oldest methods used for cooling were evaporation and the use of natural ice or snow; With the passing of the years, technology advanced by leaps and bounds, creating an artificial cold of compression and absorption. The first is the most used, another method is to use a thermoelectric pair that causes a difference in temperature, this is done by using a cold substance with liquid nitrogen.

The best known refrigeration systems for treating ambient temperatures are: single units (window), used to cool a single room; the split devices, those that have a compressor (which is located outside to avoid noise) and an evaporator (it is located in the place you want to air condition). Finally, we have centralized refrigeration, which consists of refrigerating machines that produce cold water, which passes through pipes carrying the cold for each room.

• Compressor: is a mechanical device that pumps the refrigerant fluid, creating a high pressure zone and causing the movement of the refrigerant in the system.

• Condenser: it is usually a copper coil with aluminum lamellae as heat sinks. Its function is to release the heat of the refrigerant to the environment.

• Evaporator: it is also a coil, but its presentation varies. The air conditioning equipment is very similar to the condenser, but in domestic refrigerators is usually hidden in the walls of the freezer. Its function is that the refrigerant absorbs heat from the refrigerated area.

• Expansion device: depending on the case, it can be an expansion valve or a capillary tube. In any case, it is a point where there is a very large loss of load, due to reduction of the passage section; its function is to let the refrigerant pass from the high pressure circuit part to the low pressure circuit, expanding.

• Thermostat: its function is to automatically turn the compressor off or on in order to keep the cooled area within a temperature range.

• Fan: its function is to increase the air flow to improve the heat exchange. It is usually in the condenser area. Depending on the type of device, there may be a fan (forced air evaporator) or not (static evaporator) in the evaporator area.

# Proposed Solution

Develop an app that runs on PC. Both, technicians and clients will use the application. Clients can schedule appointments for maintenances or repairs and watch a list of spare parts.

The app will also have these additional features:

• System to handle appointments of scheduled maintenance and repairs. If necessary, repairs can be marked as urgent.

• Display a list of spare parts. This list will be premade on a CSV file.

• Show a provisional form every time a client requests a service. (It can be for sale or repair)

• Notify the technicians about scheduled maintenances.

• Each technician will have a unique identifier and all of them will be listed on a CSV file.

• In case of provisional reparations, the technician should notify the estimated time until the final repair is made.