

Connected Goods and Preventive Maintenance

One equipment ubiquitous in all offices is the printer/copier. Equipment services companies typically offer annual maintenance contracts covering scheduled maintenance as well as emergency maintenance services of printers as well as providing supplies such as toners and paper.

A typical service provider typically employs several service technicians whose job is to visit the contracted sites on a periodic basis and perform scheduled maintenance on the printer/copiers. Scheduling such visits poses numerous challenges such as :

- Scheduling downtime with customer
- minimize time traveling between the sites.
- Required Parts and equipment to perform maintenance
- List of proactive checks to perform
- Replenishment supplies like toner / paper

The goal of the prototype is to demonstrate a typical work-day in the life of a technician and how connected goods can help make it more efficient. The technicians will be able to visit more sites, complete more proactive maintenance activities and reduce the number of emergency visits. This will ensure higher customer satisfaction and a satisfied technician workforce while reducing costs for the company.

Persona Template



Sean

Service Technician

I like to fix things right the first time as I am on a tight schedule and like to arrive on time for my customer appointments

About

- 32 years, married with two young kids
- About 8 years of printer/copier maintenance exp.
- Very mobile as I am moving from site to site throughout the day
- I always like to go home on time so I can play with my kids in the backyard

Responsibilities

- Visit customer sites per the designated schedule to perform maintenance on printers.
- Identify potential problems based on trends reported by the sensors on the equipment
- Plan and carry all the required parts and equipment for the day's schedule

Main Goals

- Perform all routine maintenance as per the product manuals
- Minimize equipment failure by performing proactive maintenance
- Better management of time so I can make and complete my assigned customer appointments on time

Needs

- I need to know my assigned schedule and the addresses and route to the sites to visit today
- I need to be able to change the schedule based on customer impact/availability
- The current toner level, temperature inside the printer module and print quality trends
- When is the equipment heavily v/s least used

Pain Points

- Not knowing the equipment I need to service today
- Directions to the next site to visit
- The correct toner and parts required to fix the printer
- Availability/Usage patterns of the printer

Point of View 1

As a Service Technician ,

I need a way to know the address and route to the sites I am visiting today

so that I can reduce time wasted trying to find directions and be on time for my customer appointments.

Point of View 2

As a Service Technician ,

I need a way to know the usage pattern of the printer

so that I can change my schedule if needed so that I service the printer at a time when it is least used , reducing the impact on the end-users.

Point of View 3

As a Service Technician ,

I need a way to know if the fan is cooling the printer module efficiently

so that I can proactively replace the filter and/or replace the fan to avoid the printer failure due to overheating.

Point of View 4

As a service technician,

I need a way to know the toner level in the printer and the model of the toner cartridge

so that I can replace it during the visit and avoid a second trip to replenish and also prevent downtime due to toner being exhausted.

User Experience Story

<p>ACTIONS</p>	<p>Arrive late at the customer</p>	<p>Locate the printer and wait while it is in use</p>	<p>Replace the toner and check the print quality</p>	<p>Notice that printer module is overheating</p>	<p>Schedule a emergency visit next day to replace the fan assembly</p>
<p>MINDSET</p>	<p>“Sorry to have to ask for directions to your site. The map I am using is outdated ”</p>	<p>“I could have finished the emergency visit at site 3 instead of twiddling my thumbs here”</p>	<p>“At least I got the correct toner for the printer. “</p>	<p>“The air filter is clean. If I had known the temp. readings, I could’ve brought the replacement fan assembly”</p>	<p>“I hope the fan continues to work till my next visit” “At least I found the problem before the printer breaks down”</p>
<p>FEELING</p>	<p>😊</p>		<p>🟢</p>		<p>🟢</p>
<p>TOUCH POINTS</p>	<p>Map and customer site receptionist</p>	<p>End-user and talk with the Ops Manager about time spent waiting</p>	<p>User Manuals for the printer</p>		

The Build Prototype can be found below

[Link to the Prototype Build](#)

Some info about the Prototype

The prototype starts with a launch page with a Tile for the service Technician Sean's Schedule for the day.

Clicking on the tile should bring you to Sean's Schedule page. This will show his schedule for the day , time of arrival at each site and the type of activity to be performed. On the left , the Route map is shown as well as step by step directions to travel between the sites.

Sean can select any of the scheduled visits using the select buttons provided. Only the button for the Emergency service to be performed for L-Oreal is active . It will lead you to the Printer-Copier page showing the details of the printer and its current status / notifications.

Here, Sean can draw the following info to help with his service tasks :

- 1. Printer is used heavily in the morning but is free during lunch time. He can call to reschedule the appt to minimize impact to the customer**
- 2. The toner level is at 80% so no need to carry the toner**
- 3. There are 4 notifications with a "See all" button provided to check them**
- 4. The dialog box will show that there were temp notifications and print quality notifications at 8 am and 9 am**
- 5. The graphs also confirm the same info – indicating that some fault with the fan cooling is affecting the print quality**
- 6. Sean may need to take a spare fan assembly and a spare filter to replace as needed**

On the left hand side, the picture of the printer , the model number is displayed and the parts list can be accessed by clicking on the Part's list button (action is not implemented).