Canon OCÉ

Concept Document



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# 

# Why we choose Alert by Alerting

We chose the idea Alert by Alerting, because nowadays it is really useful and important to stay informed of occurring situations or events. Additionally, it is not possible to pay attention at multiple things at a time in any situation. That’s why we found a solution for the busy workers at OCÉ. It is very important to keep notified and avoid making mistakes because this can lead to a loss in profit.

The only thing required for this solution to work is a smart phone on which the notifications will appear. After the notifications appears the worker can perform the needed actions according to the situation.

It has to be mentioned that there are going to be different methods to notify the worker (different types of notifying).

# Concept

**Main concept focus**

The main focus of our concept are the lights. Our system will allow the clients of OCÉ to distinguish between consumables and get notified if there are about to run out. Each light color will represent a consumable which needs to be handled. In addition to the color changing to notify a worker, we will also add the feature of fading the color of the light. This fade will represent the completion status of the occurrence (the light fades from green to red). We also introduced a blinking function, which will notify the user that the current consumable is about to run out (it is in the critical section). Some of the lights will shine when they reach the minimum percentage.

So to make the lights noticeable there will be multiple number of lights hanging from the ceiling. If the ceiling is far too high there is the possibility to miss the lights. However, the solution for this is a metal frame which will be hanged right around the machine and it will hold the lights. With this design we put the lights on sight level of the person. Moreover, if there is only one machine in a room. The room lights can change depending on the situation or the light above the printer.

**Advancements of our concept**

Our concept main goal is to alert the worker behind the printer in the proper way, according to his current environment and location. So he can adjust or take action. This concept delivers an interactive way of delivering the notifications by using almost every sense in the human body. Feelling, hearing and seeing.

The concept consists of three main parts:

* Lighting
* Sound
* Vibration
* iOS application

The phone will use every hardware piece in it to notify the person. We are currently planning to make use of the human ability to use their eyes, the ability to feel, the ability to hear and to distinguish between colors using our lighting system. Categorization is an very important part of the concept. The color of the lights will categorize the types of alerts. For instance if a certain colour is almost out, the lights will light up with that certain spectrum of color. Vibration will be customizable, there will be different patterns of vibration according to the situation. Sound on the other hand will be useful only when a person is away from the room/facility where the printers are located, since they produce a large quantity of noise. We considered to add speech notifications if a critical problem occurred the phone will say what is the problem so the person can act instantaiasly.

The iOS application will be able to function as a controller of the printer. The application will be able to control the printer and from there the lights, and notifications. Our notification can be turned off in need.

# Categorization

## Lighting & Patterns

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| --- | --- |
| **Color fading**  (Some of the lamps will fade to show the status) | This fade will represent the completion status of the occurrence. It will fade from the green color to the red color. |
| **Color Spectrum**  (When the consumable reaches the minimum percentage) | It is also possible to categorize the occurrences with different colors. A specific color for a specific situation. If Cyan ink is about to run out a cyan color shines on one of the lamps. |
| **Color Blinking**  (A consumable reachers critical point) | The blinking is a next step notification after the minimum to represent the danger zone. Action must be taken fast. |

## Types of Notifications

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| --- | --- |
| **Text Notification**  **(Push message)** | When any thing happen with the machine the user will be inform by a text in the App |
| **Vibration & it’s patterns** | In case of an alert, the smartphone of the user will vibrate till the user stop it. In case the process is done it will have a normal vibration. |
| **Sound Notification and text-to-speech** | The person will receive a sound notification depending on the alert, could be a sound/text-to-speech or even both |

# Advantages of our idea

1. It will keep the worker updated with the status of the machine both inside and outside of the facility (the rooms were the printers are located).
2. We deliver different notifications depending on the person's abilities or even disabilities
3. A user gets notified by the lights
4. The users get an interactive notification system (The lights in different pattern and colors)
5. The company can categorize their alerts (different colors for different consumables)
6. The system uses the human’s sight to determine and distinguish the problem(s) that have occured.

# Personas

Targeted Audience: Canon OCÉ printer owners (buyers)/ printer operators

The personas of OCÉ are the clients for which they manufacture the printers. The clients must have a technical background or at least some experience in the technical sphere. He/ She must also be able to act quick in critical situations. For this our concept delivers the possibility to the person to get the alerts in real time. The alert are demonstrated in a interactive way, making it more interesting and clear for the persona. With these advancements the person will increase his/hers productivity in any situation.

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| **Persona 1** | |
| **Name** | Bram Janssen |
| **Nationality** | Dutch |
| **Working Station** | He’s working station is in the facility where the printer is located |
| **Background (Specialization)** | Technical (able to operate and repair an industrial printer)  Challenges: Wasting a lot of time not knowing the status of the printer, I must always go to the printer control terminal or check my phone to monitor it’s status. Like, what is running out or is about to run out. |
| **How does he get his information:** | Printer terminal, phone and now lights |

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| **Persona 2** | |
| **Name** | Willem van den Wildenberg |
| **Nationality** | Dutch |
| **Working Station** | He’s working station is in the office which is away from the facility |
| **Background (Specialization)** | Technical (able to operate and repair an industrial printer) |
| **How does he get his information** | By the app, with sound (speech) notification |

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| --- | --- |
| **Persona 3** | |
| **Name** | Gaijse van der Vart |
| **Nationality** | Dutch |
| **Working Station** | He is working in the facility with the printers |
| **Challenges** | The challenges which I encounter are related with distinguishing the problems, just from the currently install lamp on the printer. It notifies me that something is wrong, but I want to see the problem easier. |
| **How does he get his information** | The printer terminal, the light on the printer, just to know that something is happening |

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| **Persona 4** | |
| **Name** | Sven van Barend |
| **Nationality** | Dutch |
| **Working Station** | He is working in the facility with the printers |
| **Challenges** | I am not a big fan of phones especially smartphones, so i prefer to use printer terminals to look at the status, I wish there was another way of seeing what is happening, without it involving a displays. I have sight problems and I need glasses to read the problem shown on the display. |
| **How does he get his information** | The printer terminal, the light on the printer, just to know that something is happening |

# Use cases

|  |  |
| --- | --- |
| **ID** | 10 |
| **Name** | System of the printer notifies an occurrence |
| **Actor** | Printer system |
| **Trigger** | Automatic (Event handler) |
| **Main success scenario** | 1. Actor triggers event 2. Actor turns on lights and continues to monitor status, and changes the lights and/or fades them. |
| **Extension** | 2. Lamp does not work  2.a) change bulb |

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| --- | --- |
| **ID** | 11 |
| **Name** | Worker at the printer receives the light system notification |
| **Actor** | Worker at the printer |
| **Trigger** | Human eye and brain |
| **Main success scenario** | 1. Actor receives the light signal from the machine on the ceiling 2. Actor does the required action from him |
| **Extension** | 1. Lamp does not work  1.a) change bulb |

# Scenarios

### Scenario 1:

**Printer is almost out of a certain color ink.**

Worker inside the building

*Worst scenario:*

Bram is operating multiple printers. Every now and then, the printers alerts him by beeping. Before he knows what is going on, he has to check the printer status on the printers menu screen. He finds out, that the printer is out of cyan. He refills it when thinking: “why couldn’t I know it was running low before it ran out? That would had saved me some time from getting the error shown to fetch the new ink and refill the printer. If I knew it was running low, I could’ve fetched the ink before it ran out, so I could change it a lot faster!”.

*Best case:*

A normal day at work, Bram is having a good day so far but, from nowhere, the yellow ink started running low from the printer he was operating. Luckily he receives a light notification (the ink light starts becoming yellow, to indicate which color is running out) which is warning him about the issue he is facing with the machine. He can now prepare to refill the ink before it runs out, which saves him time and cuts the machines downtime.

Worker outside the building

Bram is leaving the building where the working machines are because other responsibles. While Bram is outside the building one of the machines is almost out of yellow ink. Bram will get a notification from the App which is working and received the current issue. Thus, he will be back to machines location or call someone who will check the error.

### Scenario 2:

Worker inside the building

**Paper Jam.**

*Worst case:*

The operator is in the machine room servicing the printers. He checks one printer that has 20% paper left in the paper tray. He prepares to refill it by getting some paper for it. In the meantime, one of the other printers broke down. The operator just thinks that the machine needs to get a paper refill, so he doesn’t check the machine to see the correct error. After the first machine is refilled (which takes five minutes or so), he goes over to the other machine and realize that the paper tray is almost full, but a paper is jammed inside the printer. This will take a bit of time to fix, so the machine will be out of order for 25 minutes in total. This time could have been reduced, if the operator knew, that it was a paper jam, he would had fixed it right away cutting the downtime by a significant percent, and refilled the other machine afterwards (which had enough paper to not run out in that span of time).

*Best case:*

The paper roll is stuck in the machine. Because this is an urgent error, Bram sees a flashing light above the printer. That way he instantly notices the error, and the speech notification tells him what is wrong.

Worker outside the building

Bram is leaving the building where the working machines are because other responsibles. While Bram is outside the building one of the machines has a paper jam , Bram will get a notification from the App which currently got the issue. Thus, he will be back to machines location or call someone who will check the error.

Note: Just keep in mind the percentage and amount of time is estimated based on the printer consumption. Each printer has their own notification at a different percentage.

This is concluded after our research.

### Scenario 3:

**Paper running out.**

Worker inside the building

*Worst case:*

Bram will not waste time not knowing how much paper there is left in the printer, because he wants to know when to fill up the paper. He checks the printer once every half an hour. This takes a minute or two, which he could have used elsewhere. He wonder if there is a way to see the printer’s paper status.

*Best case:*

Bram is having a normal day servicing multiple printers. He looks at the lights above the printers, and notice that one of the printers lights is not green, but has turned orange. That signals to him, that the printers paper tray should be refilled soon. With that heads up, he can prepare the refill before the printer runs out of paper. That means he saves time and minimize the printer’s downtime.

Worker outside the building

Bram may leave the building where the working machines are because of other responsibles. While Bram is outside the building, one of the machines is running out of papers. Bram will get a notification from the App with the machine’s issue. Thus, he will be back to the machines location or call someone who will check the error.

### Scenario 4:

**The printer broke down light alert.**

Worker inside the building

*Worst scenario:*

Alex is working next to the room where the printer machines are, Alex from time to time check the status’ of the working machines, Alex will know if error occur in the process of printing from inside the room by machine alert .

*Best scenario:*

Alex working next to the room where the printer machines are, Alex from time to time check the statues of the working machines, Alex will know if error occur in the process of printing from outside the room from the red flashing light above the machine that broke down .

Worker outside the building

Alex leaving the building where the working machine are for other responsibles. While Alex outside the building one of the machines broke down , Alex will get a notification from the App which will inform him which working machine got the issue . Thus, he will be back to machines location or call someone who will check the error.

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# Storyboards

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# Paper Design

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# User Test

<https://docs.google.com/document/d/1B9nvspKXA5CxS49kgM4q-6gd8gzm_zW-FKQLSeXGwUI/edit?usp=sharing>

Test 1: Did the person noticed the light while doing his task?

Test 1: Did the person recognize the color meaning?

# User Questions

These were the questions that we emailed to the client, when the project was in its initial stage.

Questions for concept formation

1. What is/are the biggest problem(s) of the workers working next to the printer?
2. How do you get notified of an occurrence?
3. Of what do you keep track, at most? Like, inc, paper or other?
4. How much noise does the printer produce?
5. Do you use smartphones?
6. Is there a currently implemented notification system?
7. Where is the problem in the printer or in the worker?
8. Would you prefer to see a notification from every separate components of the machine? (Like having lamps on every separate component, when one it starts flashing or have only one for all)?
9. Do the printers produce any notification sounds?
10. How many errors and notifications are occurring regularly?
11. Which are the most common errors?
12. Would you prefer to have sound notifications (beeps) or speech notifications (like a voice telling what is the error currently occurring)?
13. Do you have any types of notification currently used or applied in you company? If so. Do you categorize you notifications?

Questions for User testing product

1. Is the system fun?
2. Is the system easy to understand?
3. If you could change something in the product what it would be?
4. If the color fades from one color to another, what do you think this means?
5. How would you categorize the colors? Are there colors which you connect with a situation based on instinct?
6. If a color represents a situation, which color would you change for its situation?
7. Do you find the light noticeable?
8. Do you feel the intensity of the light is too much?
9. Do you find the position of the lights convenient? Do they catch your attention?
10. Would you recommend this approach to your coworkers?

# 

# Appendix

