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| | | *User Experience Design Methods* | |
| 1 | Storytelling | Buxton, B. (2007b). It was a dark and stormy night… In Sketching User Experiences. San Francisco, CA: Morgan Kaufmann, pp.261-275 | 262 |
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| 3 | Theatrical Sketches | | 267 |
| 4 | Bodystorming | | 267 |
| 5 | Experience Prototyping | Buchenau, M. and Suri, J.F. (2000). Experience prototyping. Proceedings of the ACM Conference on Designing Interactive Systems (DIS '00). New York: ACM Press, pp. 424-433. | 424-433 |
| | | Moggridge, B. (2007b). Prototypes. From Ch. 10 in Designing Interactions. Cambridge, MA: The M.I.T. Press, pp. 682-723. | 687 |
| 6 | Flow Analysis | Moggridge, B. (2007a). People. From Ch. 10 in Designing Interactions. Cambridge, MA: The M.I.T. Press, pp. 664-681. | 671 |
| 7 | Cognitive Task Analysis | | 671 |
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| | *Service Experience Design Methods* | | |
| 22 | Service Walkthrough | Blomkvist, J., Åberg, J. and Holmlid, S. (2012). Service walkthroughs to support service development. Proceedings of the 3rd Conference on Service Design and Service Innovation (ServDes '12). Linköping, Sweden: Linköping University Electronic Press, pp. 43-52 | 3 |
| 23 | Roleplaying, acting and drama | | 2 |
| 24 | Bodystorming | | 2 |
| 25 | Exploratory Research (Shadowing, Participant Observation, Contextual Inquiry, Storytelling) | Dubberly, H. and Evenson, S. (2010). Designing for service: Creating an experience advantage. Ch. 19 in Introduction to Service Engineering. G. Salvendy and W. Karwowski (eds.). Hoboken, NJ: John Wiley & Sons, pp. 403412. | 4 |
| 26 | Generative Research (Expressive exercises, Concept Ideation) | | |
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| 27 | What -if | Clatworthy, S. (2011). Service innovation through touch-points: Development of an innovation toolkit for the first stages of new service development. International Journal of Design 5 (2), pp. 15-28. | 17 |
| 28 | AT-ONE cards | | 17 |
| 29 | Surveys | | 11 |
| 30 | Evidencing | Moggridge, B. (2007d). Services (cont.). From Ch. 6 in Designing Interactions. Cambridge, MA: The M.I.T. Press, pp. 412-447. | 423 |
| 31 | Service Blueprinting | Ross, I., Ruiz, L.C. and Samadzadeh, S. (2014). Service blueprints: Laying the foundation. Cooper Journal, August 20, 2014. | N/A |
| | | Moggridge, B. (2007d). Services (cont.). From Ch. 6 in Designing Interactions. Cambridge, MA: The M.I.T. Press, pp. 412-447. | 426 |
| 32 | Service Prototyping | Blomkvist, J., Åberg, J. and Holmlid, S. (2012). Service walkthroughs to support service development. Proceedings of the 3rd Conference on Service Design and Service Innovation (ServDes '12). Linköping, Sweden: Linköping University Electronic Press, pp. 43-52 | 2 |
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## The Selection

Over the past one and a half year, one problem that has been constant is missing out on timely checking of mailboxes, or wasting trips to and fro from the building lobby, while anticipating an important email, only to find the mailbox empty. With the introduction of connected devices and IoT and ubiquitous computing, there has been an upgrade in many things. However, the problems associated with mailbox are still present. Most of the cluster mailboxes in apartments are pretty old. Figure 1 shows the existing mailboxes at the apartments. The problem with this mailbox is that we never know if a mail has arrived. In a shared apartment with just one key for each mailbox, finding the key is also a hassle and it adds one more round trip to the mailbox every time one is expecting a mail.

## The Execution

For this exercise, I am using **Activity Analysis**, one of the 51 methods presented by IDEO. The idea of the IDEO cards is to make a large number of different techniques accessible to all members of a design team and to encourage a creative approach to the search for information and insights as their projects evolve (Moggridge, 2007a).  By recording the tasks, actions, objects, performers and interactions involved at my home, as we have a shared mailbox. I share the apartment with 2 other girls, we can call them Naina and Ria for the purpose of this exercise and to maintain anonymity. This method is to identify stakeholders to interview and prioritize pain points for solving this issue.

We stay on 2nd floor and our building does not have an elevator. We have one key for the mailbox which we have kept in the 3rd drawer in the kitchen area so that anyone who needs to check the mailbox can take the keys from there, get the mails and the we've agreed on the arrangement that key will always go back to 3rd drawer each time after the mailbox is accessed by anyone. For the purpose of this exercise, I am recording how we access the mailbox over next 15 days.

Day 1: Naina is expecting some medical bills from UW Medicine so she takes the key from 3rd drawer and goes downstairs to check the mailbox. The bills haven't arrived yet but she finds Safeway coupons. Ria, who is expecting a check from her workplace says that she expects the check to reach her by tomorrow but she also goes to Naina and asks her if she found any mails addressed to her in the mailbox. Naina tells her she just found the coupons and she has kept them on the table.
Day 3: Ria mentions she is expecting to see the check today in the mailbox. So, she opens the 3rd drawer, takes the key and goes down one floor to check the mailbox. She finds her mail and also a few spam mails, addressed to previous tenants. Since she is getting late for her class she chooses to ignore them. She comes back home, takes her bag and leaves for class.
Day 5: Finally, weekend is here. Ria is off to her sister's place in California for two weeks. She is going to work remotely for 2 weeks. Naina recalls she should check the mailbox for bills so that she can make the payment on time. She looks for the mailbox key in the 3rd drawer as usual but she doesn't find it. She asks me if I have seen it. I hadn't. We figured Ria might have missed out on keeping the key back in the drawer. We called her up and got to know the key was with her in the pocket of her jacket. But she won't be here until next 2 weeks. We drop an email to the Apartment manager asking if he has spare keys and wait for his response.
Day 8: Its Monday and the apartment manager replies saying he does not have a spare key. Naina has no other option but to wait until Ria gets back. And meanwhile, Ria is feeling so helpless and guilty.
After experiencing this incident, I chose to interview Naina and also thought of connecting with Ria over a phone call. I found some insights shown in Figure 2 and 3. Based on the interviews, I identified some pain points which are mentioned in Table below.

***Quick-And-Dirty Prototype along with Paper Prototype:*** Service touch-points can be faked with quick and informal techniques. Quick-And-Dirty prototypes provide the way in which a proposal for the design of a new service can be explored, evaluated, and improved through iterative development and paper prototypes are the most versatile way of simulating user interactions (Moggridges, 2007b). Using empty Amazon box and a cylindrical container I was able to create a prototype which shows the new design. To solve the problem, we can use a bluetooth enabled or wifi enabled sensor and we could fit it right at the top of the mailbox as shown in the Figure 4. This added device when enabled with a mobile application can help us solve most of the problems. The new design solving the following pain points is shown in Figure 5,6 and 7.

| Sr. No. | Pain Point | Solution |
|---|---|---|
| 1 | Lack of knowledge or information about a mail arriving in the mailbox | The sensor can sense when a new mail has arrived and send a notification to the app connected with it. Lets called is SmartMail. |
| 2 | One key for all users and dependency | We can place sensors on the door and on the inside and use the application configure the password |
| 3 | When the mailbox is full and there's no room for new mail | The sensor sends a new alert, mentioning that the mailbox is full. |
| 4 | In a shared mailbox, it's hard to determine who the mail belongs. Each of us will go and check the mailbox on receiving notification. | Having a camera on the sensor which can send photo of the recipient will determine who has received a mail. |

## The Evaluation

With the help of Quick and Dirty Prototype, I was able to address find solutions for the pain points the users were facing. Running the prototypes by my stakeholders, I was able to get immediate feedback. In the mail service delivery, I was able to improve the experience by redesigning 2 of the touchpoints and making them more user-centered.

As can be seen from the quick and dirty prototype, the sensor and the new touchpoint mobile app provide following features and functionalities:

| Sr. No. | Before | After |
|---|---|---|
| 1 | Make multiple trips to check if mail has arrived | Go down to collect mail only if you receive a notification |
| 2 | Shared keys- Be a perfectionist-keep the keys at the same place | App controlled passcode- Admin can set rest can read |
| 3 | Never know if the mailbox is full | Information about it sent via Alerts |
| 4 | No knowledge if you miss a mail | Captures & sends across pictures of the cover of each envelope so that you can keep track. |

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## *Appendix*



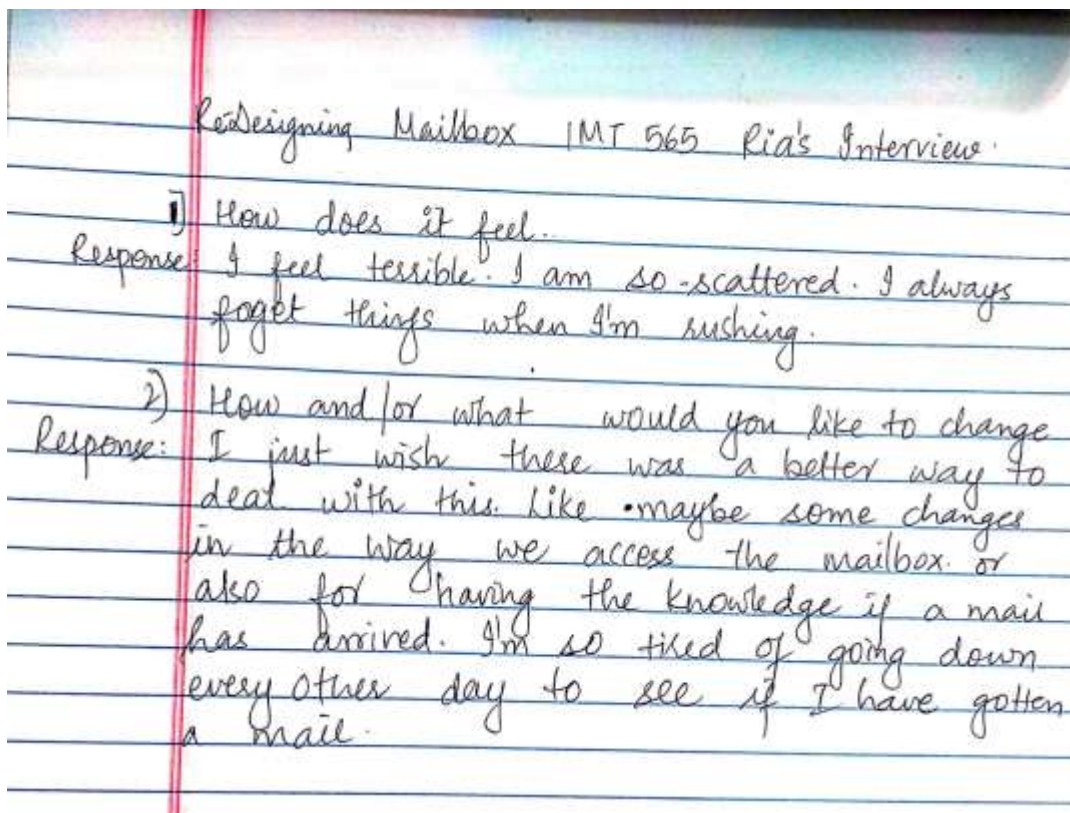Figure 1: Existing Design of mailboxes



Figure 2: User Interview #1

Redesigning
Mailbox   IMT 565   Naina's Interview.

Q.1  How do you feel having to wait for getting your bills
     for another
     after   2  weeks?

Response –  I'm so frustrated. I am worried about the due date
            and I might have to check online whats the policy
            around late payment.

Q.2  Do you wish if there was an alternative way

Response:  I just wish each of us has one key or some-
           thing via which with the help of which we
           need not be dependent on  each other and
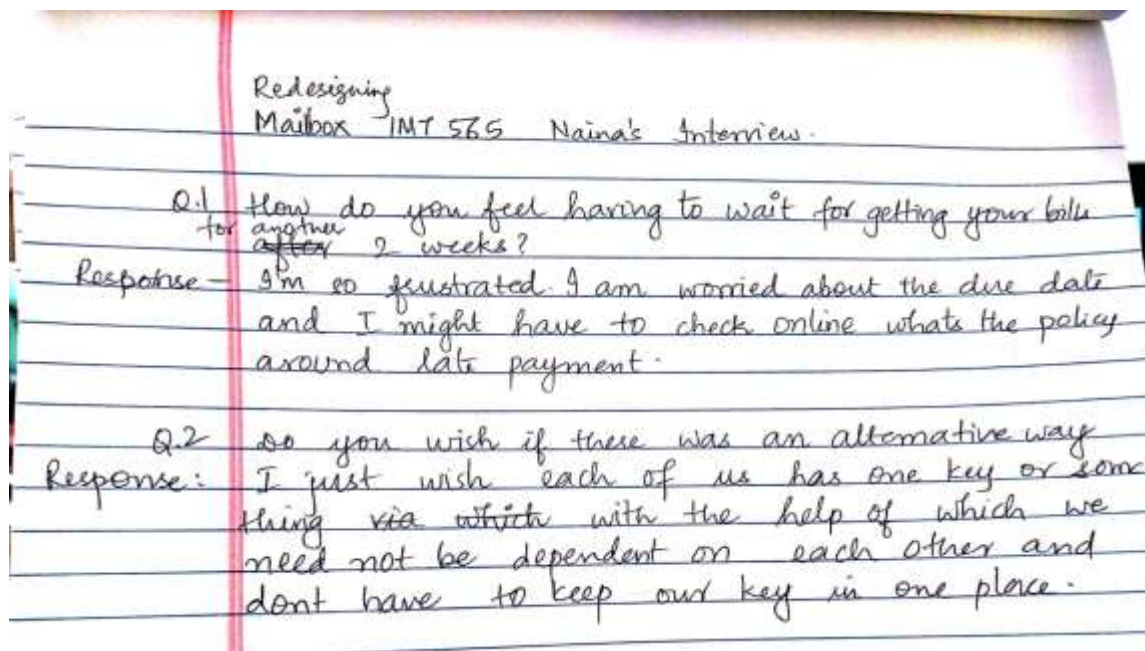           dont have to keep our key in one place.
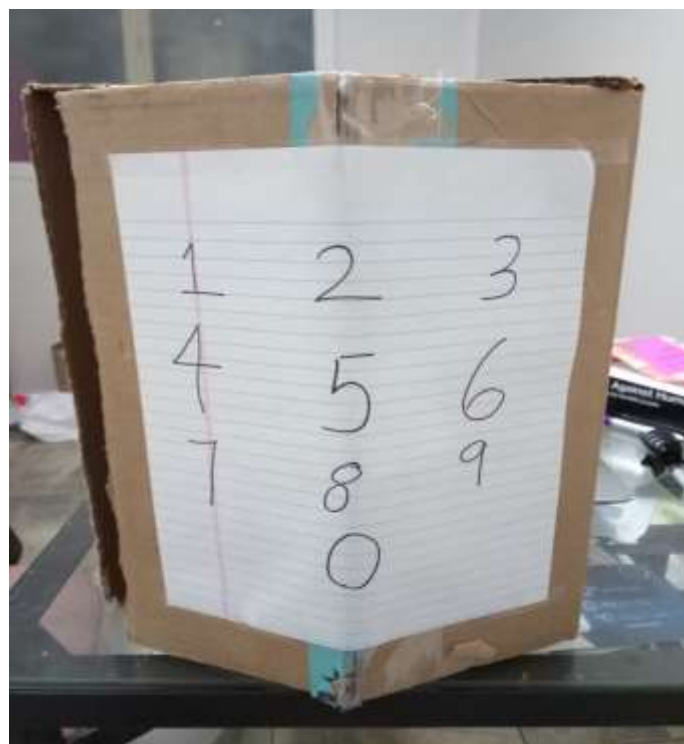
Figure 3: User Interview #2



Figure 4: Quick & Dirty Prototype - Mailbox with passcode lock

Figure 5: Quick & Dirty Prototype - Placement of sensor and new mail


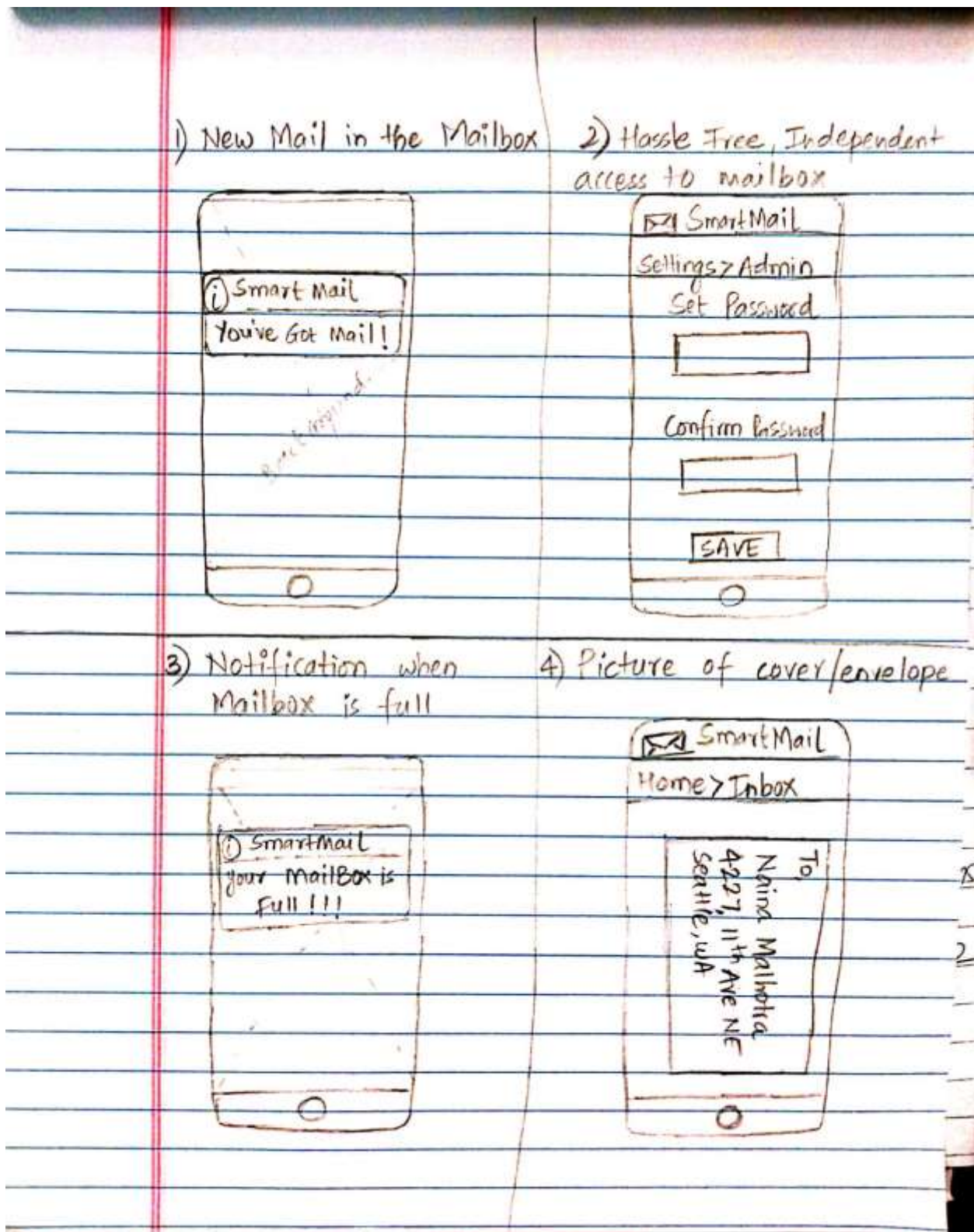Figure 6: Quick & Dirty Prototype - Camera equipped sensor

Figure 7: Paper Prototype of the SmartMail Mobile Application