NEAT
A solution for every home
TEAM

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MEET DAVE

Source: https://gayswithkids.com/wp-content/uploads/2015/03/guy-cleaning.jpg
MEET DAVE

28 Year Old
Surgery Resident
Working 10 to 16 hour shifts

Source: https://gayswithkids.com/wp-content/uploads/2015/03/guy-cleaning.jpg
“It’s really hard to keep the house clean and organized when I don’t have much time.”
55% of Americans point to an unclean home as a source of stress\(^1\)

1 - http://www.huffingtonpost.com/2013/05/22/home-organization-stress-survey_n_3308575.html
An unclean environment has negative health outcomes
Where do we begin?
Semi-structured Interview

4 Students & Professionals

Conducted In-Context

What did we find out?
Cleaning is frustrating
Cleaning has internal and external triggers, and it is **not a priority**
People tend to clean in **bursts**, and they only clean what they own.
How can we help out?
Identify Tasks
Glance at the overall cleanliness of the house

Access cleaning history for every room
Prevent a messy home when receiving visitors

Promote cleaning activities during idle times
Suggest cleaning activities

Identify general maintenance tasks
Design 1

digital board in context. Showing in kitchen because for many this is the center of the home.

Example of hidden maintenance thing in bathroom

 histórico/data on this room

back arrow to go to house overview. Use can also dismiss

things to do in the bathroom as small task with time estimate based on past history.

slide bar based on when you last cleaned this room.

Did cleaning the tub took you 20 min? 0:20:44
Done

tap to select a room

Tap to select a room.

Smart home dashboard.

Blueprint with the current cleaning state of the house.

Notification panel showing when visitors are coming and hidden maintenance tasks to be done around the house.

Add notification button for adding additional items.
Design 2

- Smartphone app to make sense of your data main screen.
- Hidden mainbar log.
- House information status.
- Wearable to passulate data input, listen to proposal, voice activated.
- E.g.: Cleaning bathroom start.

If tapped:
- Suggestion: How much time do you have? 1:15
- Suggestion: Use extra time they have available.
- Suggestion: Based on the time you have free, what to do.
- Future: Mom visiting?
- Future: Friends on the way.
- Future: Air visiting 15 from Boston.
- Future: Bob staying.
- Want to add a visitor from this screen.

If tapped:
- Suggestion: With 15 minutes you can:
  - Clean toilet in 10 min.
  - Bathe room in 10 min.
  - Change sheets 10 min.
  - Water plants 10 min.

Hidden Tasks:
- Change air filter.
- Change bed sheets.
- Change bed sheets.
- Clean pridge.
- Clean oven.

House Info:
- Showing you the cleaning history and how many days ago since you did X.
Design 3

- Notification appears when the design recognizes the user needs to clean a particular item.
- Dragging allows the user to set aside time specifically for cleaning.
- ○ represents a touch.
- ○ → represents a dry.
- Tapping on suggested times allows the user to initiate that time period as a cleaning specific time period.
None were really quite there
Use what already gets people to clean
Internal and External Triggers
Design 4.3
Smart house concept

How to obtain the data

1. **Use existing personal data**
   - Parse through the user’s emails and text messages to identify internal and external triggers

2. **Collect cleaning metrics**
   - Use wearable devices to collect cleaning metrics: time on task, frequency and task name

Voice recognition commands
- “Start cleaning toilet”
Glance at the overall cleanliness of the house
## Access cleaning history for every room

### Bedroom 1

<table>
<thead>
<tr>
<th>Days Ago</th>
<th>Task</th>
<th>Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Change bedsheets</td>
<td>Basic</td>
</tr>
<tr>
<td>8</td>
<td>Dust furniture</td>
<td>Basic</td>
</tr>
<tr>
<td>8</td>
<td>Clean floor</td>
<td>Basic</td>
</tr>
<tr>
<td>7</td>
<td>Dust floor</td>
<td>Basic</td>
</tr>
<tr>
<td>13</td>
<td>Hang all clothes</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Clean windows</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Organize cleanup</td>
<td></td>
</tr>
</tbody>
</table>

- **2 days until required cleaning**
- Total time: 45min
- Clean life: 10 days
- 1 basic task
- 46 basic tasks (must do)
Prevent a messy home when receiving visitors

<table>
<thead>
<tr>
<th>Day</th>
<th>Task</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Today</td>
<td>Clean bath sink</td>
<td>10m</td>
</tr>
<tr>
<td>Tomorrow</td>
<td>Clean toilet</td>
<td>15m</td>
</tr>
<tr>
<td>Tomorrow</td>
<td>Sweep floors living</td>
<td>10m</td>
</tr>
<tr>
<td>Tomorrow</td>
<td>Clean kitchen counter</td>
<td>10m</td>
</tr>
<tr>
<td>Friday</td>
<td>Change sheets</td>
<td>5m</td>
</tr>
</tbody>
</table>

Mom is arriving in 4 days. Have the house ready.
To do: 6 tasks
Total time: 60m
Promote cleaning activities during idle times.
Suggest cleaning activities

In 15" you could...

- Dust the floor: 15"
- Clean the toilet: 15"
- Clean the mirrors: 10"
- Change towels: 5"
- Wipe counters: 10"

How much time do you have?

- 15"
- 30"
- 45"
- 60"
Identify general maintenance tasks

MAINTENANCE TASKS

Smoke detector batteries

Smoke Detector Batteries

2+3 home fire deaths result from fires in homes with no smoke alarm.

Last maintenance date: January 1st 2015

Next maintenance date: October 1st 2015
Storyboard 1: Suggesting cleaning tasks based on available time
Storyboard 2: Using external triggers to encourage cleaning

Jane has been watching TV for the last 2 h.

Hello Jane

The smart tablet lets Jane know mom is coming in 2 days.

Now Jane is ready to receive mom.
What have we learned?
You have to explore bad designs to get a good design
Always keep the user needs in mind
No idea is a crazy idea
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QUESTIONS?