Summary
The service manager for a heating systems company needs a solution to monitor and efficiently manage service calls for heating systems installed in office and apartment buildings as well as family homes in the Rhine-Neckar Metropolitan region.

Storyline
The service manager is interested in knowing all relevant temperatures and operating conditions to plan the most optimal service interval and minimize unit failures. He and his technician team needs to be notified as soon as the operating conditions go above or below defined tolerance ranges which possibly could be an indication of a pending failure. A technician could then perform remote diagnosis on the unit to identify if the issue can be resolved remotely by adjusting parameter settings or if it's necessary to send a technician on-site. In case a part replacement is required, the exact part can be identified in advance and directly taken along by the field technician to the on-site service call. The service manager also needs performance trend analysis reports for each heating system to schedule the most optimal time to perform regular maintenance tasks. An additional benefit to improve time and cost efficiency would be a geo spatial location overview of units pending on-site maintenance to optimally plan the services routes for field technicians.
Persona

Michael
Service Manager

“I want to give our customers an uninterrupted office and home heating experience and provide an efficient and ‘first-time-right’ service quality.”

Background

- 37 years old, married, master craftsman diploma and certificate in Business Management.
- 12 years working experience, manages service technician team (17 staff) for last 15 months.
- Identified various areas to improve efficiency to reduce both costs and provide effective customer service.
- Also works with development engineers providing regular feedback to improve the fault tolerance of new series heating systems.

Responsibilities

- Manage team of 17 junior & senior technicians.
- Perform regular maintenance tasks to ensure optimal operating conditions.
- Diagnose and fix heating system failures.
- Provide regular feedback to development engineers to improve the fault tolerance for new series heating systems.
- Support subcontractors fulfill service requests and ensure they provide high service quality.

Main Goals

- High customer satisfaction by providing an efficient and effective service.
- Reduce unit failures to a minimum.
- Fix faults and defects “first-time-right”
- Better management of regular maintenance intervals.

Needs

- Need real time insights to the heating units operating conditions
- Need to identify abnormal operating conditions before these result in unit failures and impact customer comfort.
- Need for remote diagnosis function and where possible fix fault directly via remote means to reduce (expensive) on-site calls.
- Need to identify defective parts remotely.

Pain Points

- Unnecessary unit failures which could have been prevented by early insights of operating conditions to mitigate pending defects.
- Frequent on-site calls to diagnose and fix simple faults.
- Multiple on-site calls to diagnose and fix the same single faulty unit, for example defective part only identified on-site and not available in service vehicle cause extended outage until follow-up on-site call.
- Inefficient service routes causing too high travelling times between on-site calls.
Point of View

As a __service manager__ I need a way to

__gain real-time insights on the operating conditions of our heating units__ so that

__I can proactively prevent failures and give our customers an uninterrupted office and home heating experience__.
### User Experience Journey - Processing priority service request to diagnose and fix a failed heating system

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>MINDSET</th>
<th>FEELING</th>
<th>TOUCH POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The service manager, Michael, receives a call in the morning from a customer reporting that many employees in his office building are complaining that the heating is not working.</td>
<td>• “Oh no, today is really cold, better get this fixed quickly!”</td>
<td>☹️</td>
<td>• Customer call</td>
</tr>
<tr>
<td>• The customer’s facility manager already checked the central heating system and confirmed the gas boiler is failing to fire up.</td>
<td>• “We should have checked this unit earlier and possibly could have prevented this failure”</td>
<td>☹️</td>
<td>• Service history</td>
</tr>
<tr>
<td>• Michael checks the service history for this unit and sees that a regular maintenance call is scheduled in 2 weeks time.</td>
<td>• “I’ll send Jack to check the issue, he is very experienced”</td>
<td>❌</td>
<td>• Maintenance schedule</td>
</tr>
<tr>
<td>• Michael creates a service order and immediately dispatches a technician to check the unit on-site.</td>
<td>• “This is not good, I don’t carry this part in my service vehicle ...”</td>
<td>😞</td>
<td>• Service order Technician</td>
</tr>
<tr>
<td>• After Jack arrives, he goes directly together with the facility manager to the building’s basement and starts checking the heating system. He quickly identifies a defective part that needs replacing.</td>
<td>• “Now fixing the issue is delayed even longer ...”</td>
<td>😣</td>
<td>• Office building</td>
</tr>
<tr>
<td>• Later that afternoon Jack returns to the customer’s office building. He replaces the defective part and also performs the regular maintenance tasks. Upon completion, all is working well and he calls Michael to inform him that the heating system is running smoothly again.</td>
<td>• “The repair job again took way too long!”</td>
<td>😡</td>
<td>• Contact person</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Heating system</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• New part</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Maintenance tasks</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Parts store</td>
</tr>
</tbody>
</table>

**TOUCH POINTS**

- Customer call
- Service history
- Maintenance schedule
- Service order
- Technician
- Office building
- Contact person
- Heating system
- Defective part
- Parts store
Prototype

This mockup focuses on the one PoV to get real-time insights on the heating units operating conditions. The other three areas on the start page are just placeholders for further PoV's to be addressed in other mockups. Following are the BUILD links to review the user experience:

Prototype: https://standard.build.me/api/projects/edbb8e78115e833e0cd2a699/prototype/snapshot/latest/index.html#/14774361623949904_S0
Study: https://standard.build.me/home/projects/edbb8e78115e833e0cd2a699/research/participant/8da404fe42441c9d0cd2b7da
The operating conditions monitor page provides predefined filter options based on the deviance rating of the sensor values. Each filter "dial" also displays the total number of heating units having the same sensor rating. On this mockup page the "High" filter is selected and lists the four respective heating units below. Clicking a specific heating unit in the list will take you to the details view (page 3 below).
To display details for each sensor, the idea is to choose/select the one of interest using the sensor "dials". On this mockup page, the sensorK "dial" is selected and showing sensor details below. From here the technician can perform remote diagnoses and if possible also adjust parameters remotely to fix the issue. Alternatively a service request is created and the relevant spare part taken directly along to the onsite call.