TOUCH IOT WITH SAP LEONARDO PROTOTYPE CHALLENGE

Beehive App

Tefaldet Negash
Story

Hanna is a beekeeper. Hanna lives in a village called Moos, which is located on the shores of Lake Constance. Hanna is married and has a 13-year-old daughter and a 10-year-old son. Hanna’s husband Hans is a school teacher. Hans teaches Mathematics and Physics in the Friedrich Hecker Grammar School in the town Radolfzell. Hanna has 200 beehives. The beehives are distributed in 10 different orchards and farms around the lake Constance. Each location has a cluster of minimum 5 beehives and maximum 15 beehives.

Hanna inspects each cluster of beehives every two weeks. In each inspection tour, she visits one or two clusters. In each tour, she covers an average distance of 80 km and spends an average time of 4 hours. The control involves inspection of the beehives and bee colonies and their honeycombs. To do so, Hanna must wear bee suits irrespective of the weather. She needs to move beehives, which weigh up to 40 kg, on the top of the stack to access the beehives in the lower stack. She needs to open the lid or roof of the beehives and remove the bees from the honeycombs to inspect each honeycomb.

Hanna exposes herself and the bee colonies to a lot of stress during the control tour. She spends a lot of time in the inspection tours, which she could have spent with her family. As a mother of pubescent teenagers, she would very much like to be at home when her children need her. Hanna has quite often thought of selling her beehives and giving up the job that she loves altogether. Lately, however, Hanna has started dreaming of applying all the new technologies, she often hears Hans and others talk about, to remotely inspect the beehives. This, will spare Hanna and her bee colonies from stress but most importantly she will be able have enough time for her family.
Persona

Hanna
Beekeeper

„I love my family and my bees“

About
• 44 married to a grammar school teacher with two kids between 10 and 13
• I spend a lot of energy and time to ensure the wellbeing of her family and bee colonies
• My day begins at 5AM and ends at 10PM

Responsibilities
• I am responsible for the household
• I am responsible for beekeeping:
  o Inspection tours
  o Harvesting
  o maintenance of beehives
  o Bee colony treatment e.g. from varroa
  o purchasing and sales of produce and swarm
  o Networking and agreements with farmers and orchard owners

Main Goals
• I want to have enough time for my family
• I want to have healthy and productive bee colonies

Needs
• I need to know how the condition of my bee colonies
• I need to know whether each bee colonies activities are within the acceptable range for a given season
• I need to know the productivity of each bee colony
• I need to focus only on the bee colonies with problems or anomalies

Pain Points
• Time-consuming inspection tours to all beehive clusters
• Physically straining inspection activities (moving beehives with bee suit on)
• Disturbing or annoying bee colonies during inspection
• Delayed reaction to critical problems
Point of View

As a mother and beekeeper, I need a way to efficiently work on my beekeeping and household tasks so that the wellbeing of my family and bee colonies is always ensured.
## User Experience Journey

### ACTIONS

<table>
<thead>
<tr>
<th>1. Prepare kids for school</th>
<th>2. Check inspection schedule</th>
<th>3. Prepare and load the tools and materials needed for inspection</th>
<th>4. Drive to beehive cluster location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Arrive at destination</td>
<td>2. Small talk with farm employees</td>
<td>3. Put on bee suit</td>
<td>4. Put down beehive from stack</td>
</tr>
<tr>
<td>9. Repeat steps 4 to 8 for each beehive in cluster</td>
<td>10. Drive to the next cluster or back home</td>
<td>11. Carry out household activities before the kids are back from school</td>
<td>12. Spend time with family</td>
</tr>
</tbody>
</table>

### MINDSET

- Hopefully they won’t forget their lunch boxes be late for school as yesterday
- Ok, Cluster Weber. Seldom traffic jams on the road to that cluster
- Oh! I again forgot to refuel
- Oh, no! Road works. I’ll need extra 20 minutes to get there
- Nice! Mrs. Weber. Her small talks are funny and short
- Too hot today
- I’ll sure break my back one day to lift these beehives
- Good everything is within acceptable range
- I need to hurry up
- Hopefully I will be home before the kids
- I am very tired to drive
- The kids were saying that all their friends have seen “Despicable Me 3”. I’ll take them to the cinema. It will be big surprise!
- I need to tell Hans must prepare dinner this afternoon. The kids will as usual complain about the food

### FEELING

- 😊
- 😞
- 😞

### TOUCH POINTS

- Wall calendar
- Car fuel gauge
- Beekeeping tools and materials (bee suit, smoker ...)
- Car
- Road traffic
- Navi
- Detour
- Farmer
- Beekeeping tools and materials (bee suit, smoker ...)
- Bees
- Beehives
- Car
- Road traffic
- Navi
- Detour
- Family
- Quality time with kids
Prototype

Access Interactive Beehive App in SAP Build using [Link].

Figure 1. Beehive App tile in launch page

Figure 2. Beehive object page with weight, temperature, humidity sensor data and related insights
Figure 3. Select beehive cluster from map

Figure 4. Beehive cluster photos with refresh rate of 5 minutes

Figure 5. Select beehive of a cluster

Figure 6. Alerts