Anki's Vector Revival Project

Contents

Introduction

This case study will be about Anki's Robot Vector, a voice AI assistant with personality and character. This document aims to provide improvements that can be made to the Companion bot to enhance the user experience.

Literature Review

Usability testing was used for the UX evaluation methodology during the research of improving Vector bot. The reasoning for this method was due to interactive device testing, which this specific method yields great results for this field. Usability testing is user centred, meaning data extracted from this method helps find solutions to UX design issues. In a research document, they say "interdisciplinary research in order to achieve long-term success of socially interactive robots." Lindblom, J., Andreasson, R. (2016). After wrapping usability testing, it can be quite evident that additional research maybe necessary to backup findings and problem solve others, agreeing with the statement made in the research paper.

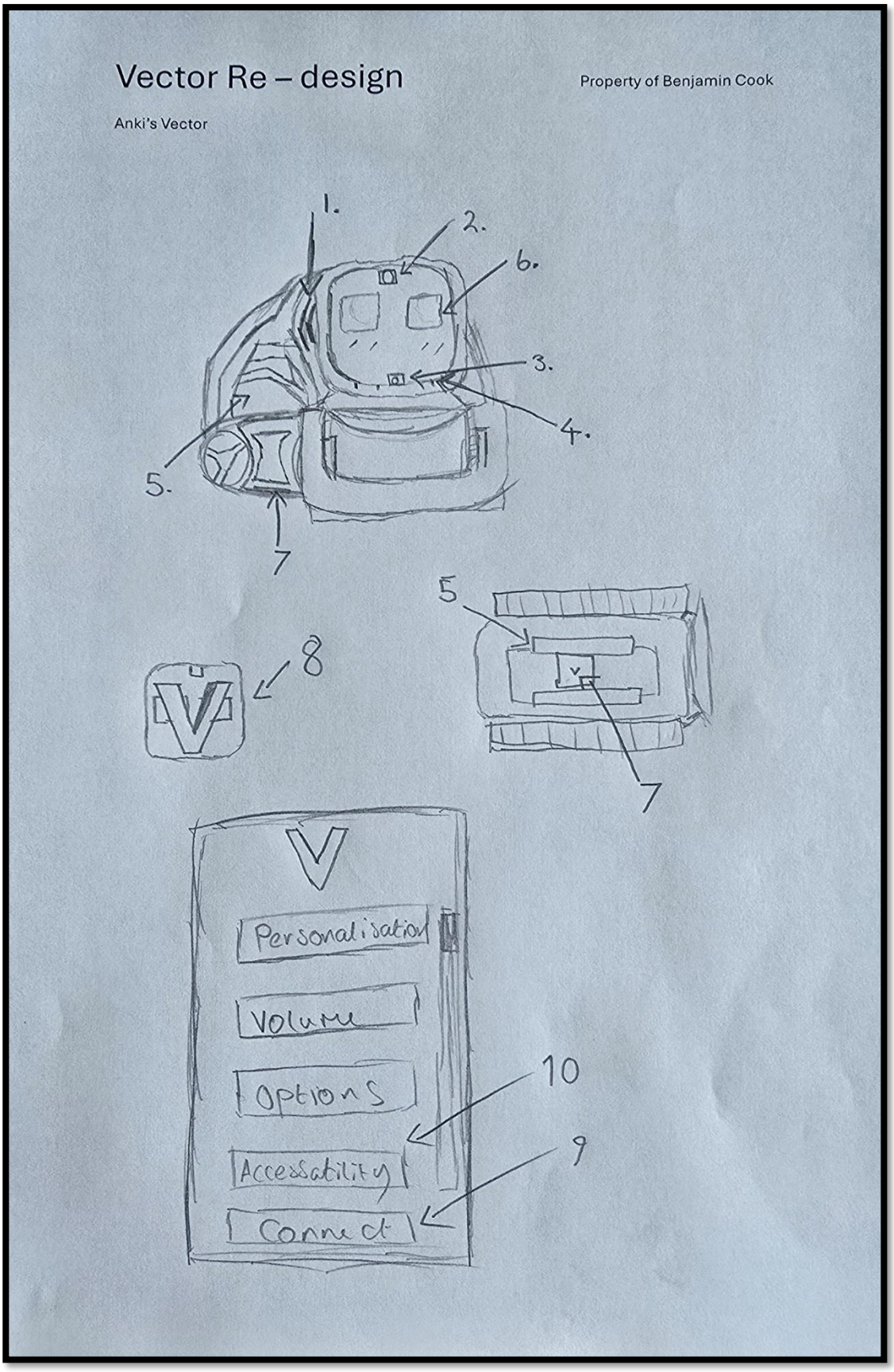
Evaluation

5 Participants were used for the usability testing. All participants were between 16 – 25 years old, who vector would mainly appeal to due to the technical and "Pet-like" nature of the bot. These participants all had different occupations and living habits. Participants were given the vector unit for a day, along with a questionnaire to fill at the end of the experience. This questionnaire followed how users felt emotionally when interacting with vector, and their hopes and disappointments in the current state of the device. Due to no personal data collection during the research, consent forms were deemed unnecessary. Fake First names were used to differentiate data from others. Personal information wasn't acceptable. See Appendix.

UX Data Analysis

Data suggested that all 5 participants expected the bot to have similar features to Alexa, such as the ability to play music especially. "62 percent of respondents indicated that they are using Alexa regularly to play music or radio" **(Alexander Kunst (2019)).** The addition of popular voice companion bots uses could drastically improve the usability of vector, far past the novelty effect. Along with this, the device was found to have battery and interaction issues. The battery was reported to "ran out of charge quick" by two participants while attempting to interact with the device. Three participants also reported issues with the vector bots hearing, as commands would be ignored. Due to these issues many changes have been considered, see below:

Vector Sketch with potential



1. Improved Hearing Module
2. Infra-red projector for addition interaction, like projected games
3. Improved camera for person recognition and picture taking
4. Improved speakers to allow different volume settings and quality music
5. Improved battery and faster charging
6. Hi – Def display for quality bot emotion
7. QR scan for connect
8. New App Logo
9. Addition settings for connection
10. Adding Accessibility, such as parental restriction.

Conclusion

The Research conducted offered beneficial data to improving vector and its UX. Completing the Usability Testing was a challenge due to time constraints, with users only being allowed the device for a day. Higher quality data with different outcomes could have been possible if given more Vector units. If done again, participants will be given the unit longer, which would yield additional feedback that could lead to improvements in the device. Interdisciplinary methods would be used to gain data other fields, as discussed in the literature review.

References

https://ankicozmorobot.com/vector-robot/

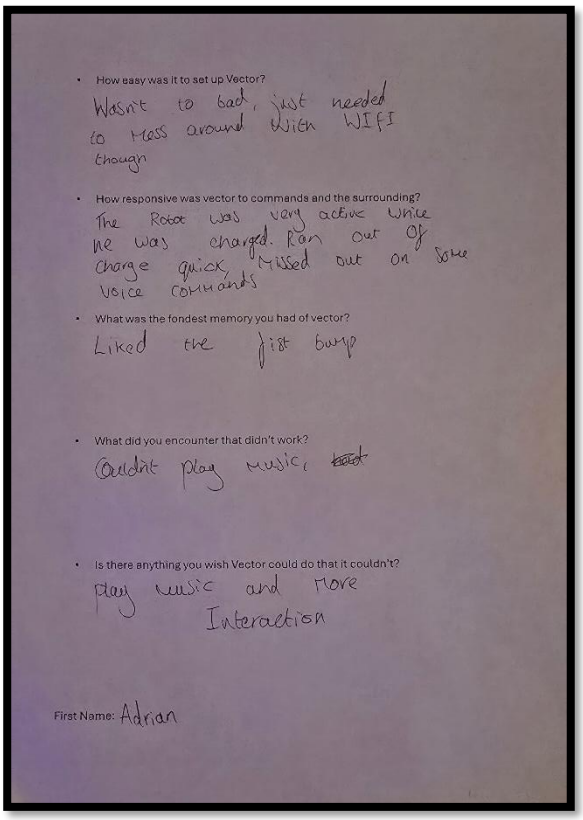
Lindblom, J., Andreasson, R. (2016). Current Challenges for UX Evaluation of Human-Robot Interaction. In: Schlick, C., Trzcieliński, S. (eds) Advances in Ergonomics of Manufacturing: Managing the Enterprise of the Future. Advances in Intelligent Systems and Computing, vol 490. Springer, Cham. https://doi.org/10.1007/978-3-319-41697-7_24

https://dl.acm.org/doi/10.1145/3406499.3418767 **(Tsiourti, Pillinger, Weiss. (2020))**

https://www.statista.com/forecasts/1037364/regularly-used-functions-of-amazon-s-alexa-in-the-us **(Alexander Kunst (2019))**

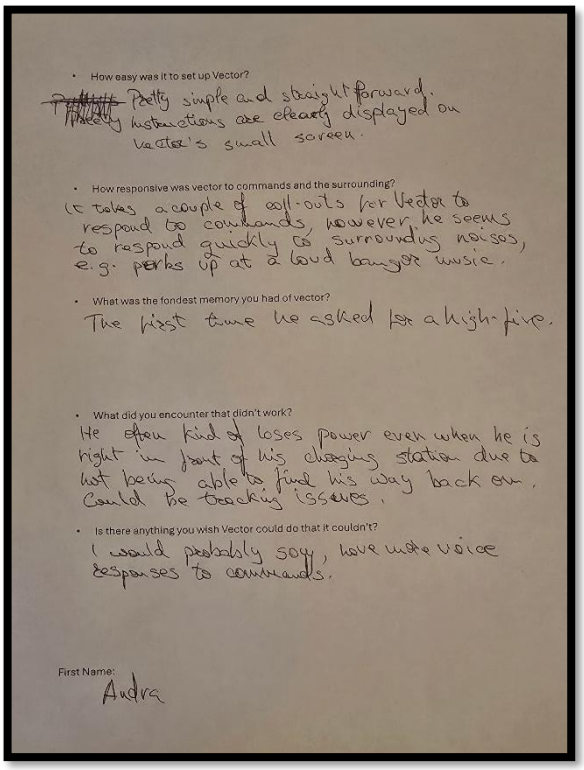
Appendices

Appendix A: Participants were asked to fill questionnaires



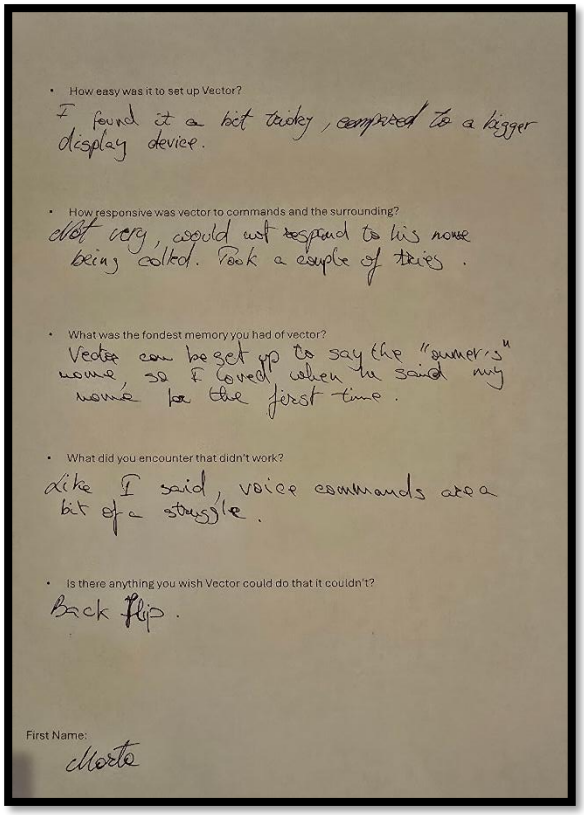
- How easy was it to set up Vector?
  Wasn't to bad, just needed to mess around with WIFI though
- How responsive was vector to commands and the surrounding?
  The Robot was very active while he was charged. Ran out of charge quick. Missed out on some voice commands
- What was the fondest memory you had of vector?
  Liked the fist bump
- What did you encounter that didn't work?
  Couldnt play music, ~~robot~~
- Is there anything you wish Vector could do that it couldn't?
  play music and more Interaction

First Name: Adrian



- How easy was it to set up Vector?
  ~~Pretty~~ Pretty simple and straightforward. ~~Pretty~~ instructions are clearly displayed on Vector's small screen.
- How responsive was vector to commands and the surrounding?
  It takes a couple of call-outs for Vector to respond to commands, however he seems to respond quickly to surrounding noises, e.g. perks up at a loud bang or music.
- What was the fondest memory you had of vector?
  The first time he asked for a high-five.
- What did you encounter that didn't work?
  He often kind of loses power even when he is right in front of his charging station due to not being able to find his way back on. Could be tracking issues.
- Is there anything you wish Vector could do that it couldn't?
  I would probably say, have more voice responses to commands.

First Name: Andra



- How easy was it to set up Vector?
  I found it a bit tricky, compared to a bigger display device.
- How responsive was vector to commands and the surrounding?
  Not very, could not respond to his name being called. Took a couple of tries.
- What was the fondest memory you had of vector?
  Vector can be set up to say the "summers" name, so I loved when he said my name for the first time.
- What did you encounter that didn't work?
  Like I said, voice commands are a bit of a struggle.
- Is there anything you wish Vector could do that it couldn't?
  Back flip.

First Name: Marta

- How easy was it to set up Vector?

  The process could have been quicker as sometimes the code would refuse to come up.

- How responsive was vector to commands and the surrounding?

  I wasn't sure what to ask him as it didn't have any guide, or indications, but he did search around the room.

- What was the fondest memory you had of vector?

  He would occasionally chuckle at me, which was quite cute

- What did you encounter that didn't work?

  Many voice commands due to Alexa requirement

- Is there anything you wish Vector could do that it couldn't?

  Play music and answer queries

- How easy was it to set up Vector?

  Could have been simpler

- How responsive was vector to commands and the surrounding?

  Listen to most, often crashed, ~~and~~ but could sense gaps

- What was the fondest memory you had of vector?

  Started dancing to one song I played

- What did you encounter that didn't work?

  Would say my name

- Is there anything you wish Vector could do that it couldn't?

  Remove the "Connect to Alexa"

First Name: Reece

Appendix B: Vector Device