Interview protocol for technology (AI robot) development in horticulture

Project: JoyRide horticulture

Introduction:

- The purpose of the interview

Purpose of the interview is for us to get to know the horticulture sector better and to discover the problems or challenges employers and employees face currently in the horticulture sector. Understanding the challenges and needs of employees and employers helps us to know how technology (robots) should be developed that cooperate with humans and truly create safe, just and pleasant working conditions. We will conduct approximately 10 interviews with different employers and employees to get a complete sense of what is happening in the sector.

- Project intro

Providing consumers with sufficient and safe food requires workers who want to work in horticulture. But it is increasingly difficult to find and retain sufficient and capable horticulture employees. Workers often come from far away, live in unattractive conditions and perform work that has become less satisfying over the years (2020, Pekkeriet et al.). Over the years, labor in the horticulture sector has become short cyclical, monotonous, physically demanding and sometimes unsafe (due to higher temperature, humidity in greenhouses and presence of pesticides), more difficult (due to plants being more densely packed, shades of light in the greenhouse) and less social. In addition, the quantitative performance of workers is continuously measured and the demands on personnel in terms of efficiency have become enormously higher. With much media attention surrounding worker exploitation and labour being perceived as unattractive, it is increasingly difficult to find workers who still want to work in horticulture sector. To provide greenhouse growers with sufficient labour, machines and robots are being developed that can take over all kinds of tasks; such as inspecting the quality of food, administering pesticides, picking, packing, lifting or carrying crates. In addition to robots, workers are (and for now will continue to be) needed. But it has not been explored yet how robots can work well with workers, creating a safe, equitable and attractive workplace. This project fills this gap and explores with stakeholders ways in which robots can ensure that horticulture becomes a just and attractive workplace, where workers want to continue working long term.

- Process of interview: recording, translator
  How and what will be done with the results.

We would like to record this interview, this ensures us to have all necessary information from the interview and we can answer the main questions we have in this project. The results of this interview will be used to verify and validate the challenges faced in the horticulture sector to discover the focus points of technology development. It will also be used to create a survey which is spread more broadly in the horticulture sector to further validate the challenges and problems in the sector.

- Moment to ask interviewee to participate in the project with a short sentence on confidentiality, agree to participate, disagree to participate, require more information about confidentiality

- More information about Confidentiality

For this study, some personal data will be collected, used and stored only within the project team. Information like your name, background, education level, job title, years of experience, seasonal vs permanent, reside in the Netherlands or work-migrant, etc. To protect your privacy your data will be coded and anonymized, this information will be stored securely within the research facility. In reports or publications about the study, your personal data will not be visible and we will ensure you are not identifiable.

The only individuals to access to the full data (not anonymized) is the project team. This is needed in order to check whether the study is performed properly and reliably.

For general information about your rights concerning the processing of your personal data, please consult the website of the Dutch Data Protection Authority. If you have any questions about your rights, please contact the person responsible for the processing of your personal data.

Interview Guide

Background information:

- Name
- Age
- Background
- Education level
- Years of experience,
- Contract type

Task analysis:

Describe your daily tasks and responsibilities in detail.

- follow-up questions on spot

What do you like (do not like) about your job

- follow-up questions on spot

Are there any challenges or pain points you encounter?

- follow-up questions on spot

Thinks to consider regarding the 5 types of co-bots
- Cool worker: Climate around employee (too hot in GHs)
- Ambient worker: Difficult to know what to harvest, what to do, next tasks
- Social worker: Difficult to communicate with colleagues, management
- Team worker: Working alone, being only valued for efficiency
- Safe worker: Dangerous or heavy tasks

Needs and goals:

What are your specific needs and goals related to your work?

If you could change. What would you do differently and how in terms of safety, inclusion, social interaction, quality of work environment, extra tools to help, co-bots, robots, digital advise, justice, attractive, easy, enjoyable?

What tasks do you feel that could be taken over/assisted by technology (co-bots)?

Conceptual design: (2nd round of interviews – first MVP)

Show the farm worker conceptual designs or sketches of the technology (all 5 types, including AI cobot)

How do you think these technologies can be feasible and usable.

If you could choose, which functionalities you would like to develop, useful, feasible, easy to use?

Prototype testing: *Invite the respondents to test a prototype and ask for their feedback on its functionality, ease of use, and usability.*

- **The Cool Worker** (technische systemen en kleding om het klimaat rond de medewerkers te optimaliseren)

- **The Ambient Worker** (systemen die de medewerker ondersteunen in zijn taak; bv die aan wijst welke producten hij moet oogsten en pakken en feedback geeft op de uitvoering van de taak en instructies verstrekt voor nieuwe taken)

- **The Social Worker** (systemen die sociale interactie op gang brengen tussen medewerkers en tussen medewerkers en management)

- **The Team Worker** (systemen die middels gamificatie en zelfsturende teams mensen laten samenwerken, waarbij prestaties niet alleen gemeten wordt op basis van efficiëntie, maar ook op basis van andere waarden voor het bedrijf (kwaliteit, scouten, verbetervoorstellen, minicompanies)

- **The Safe Worker** (systemen die gevaarlijke taken overneemt en/of die mensen in staat stelt om ergonomisch verantwoord te werken en/of voldoende rust en herstel routines stimuleert)

Wrap-up: Summarize the key points discussed during the interview and thank the farm worker for their participation. Tell what will be the next