



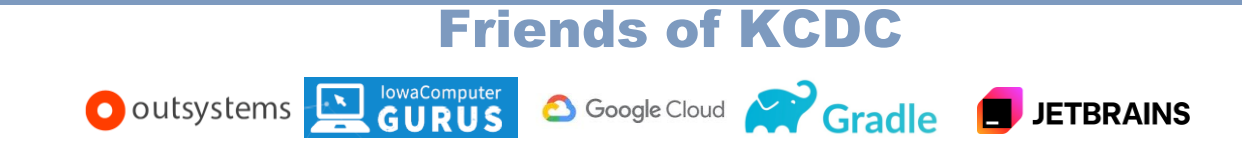
Coding a Disability Inclusive World

3 Stories

2024 // Dennie Declercq // KCDC



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Dennie Declercq

- Dennie Declercq
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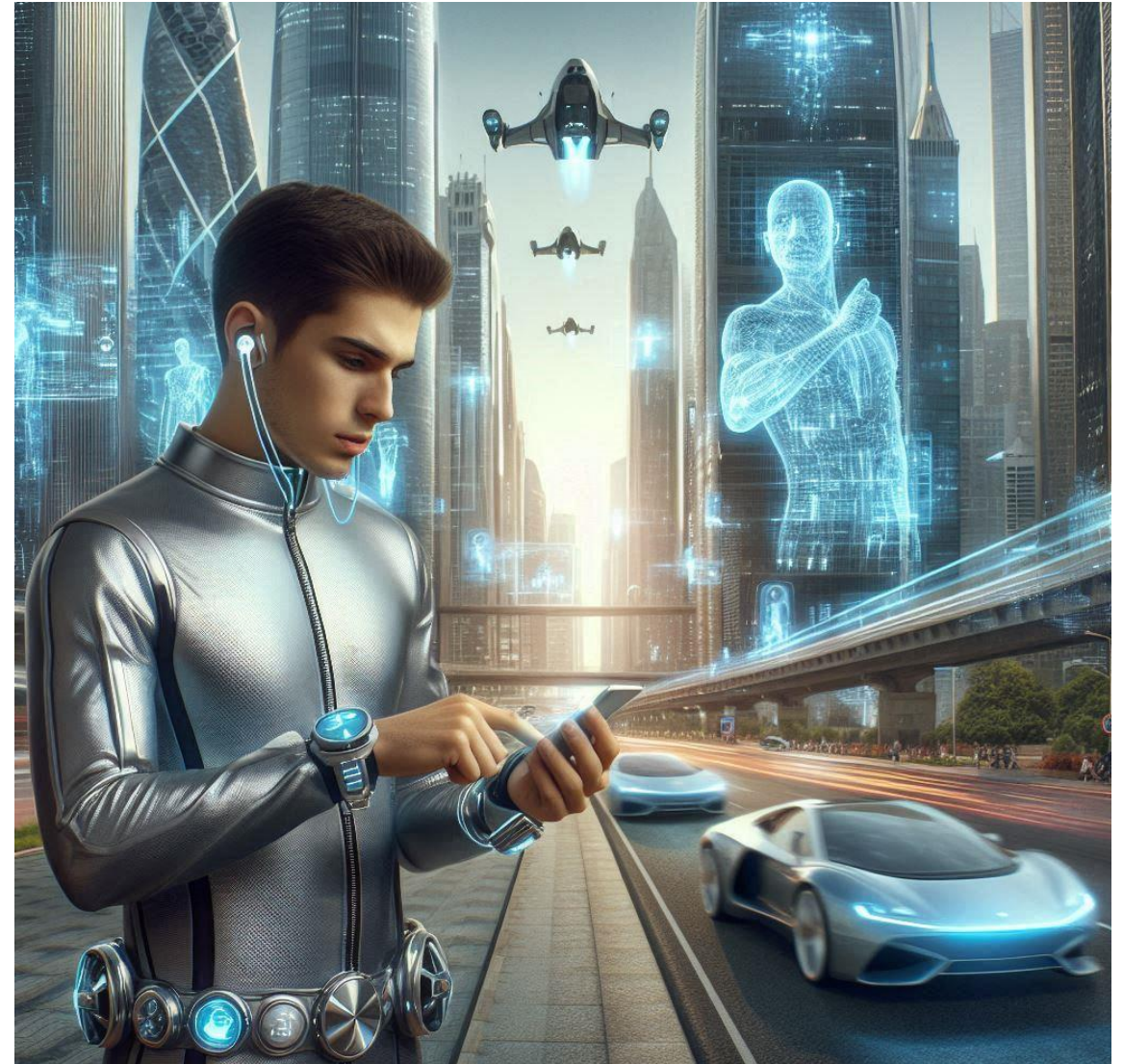


Content

- Intro: 2030
- Stories
- Persona's
- Integration

2030

- Imagine...
- When we continue doing what we do
- Digitalization
- Without a huge accessibility implementation revamp
- Focus: Software for 'end-users'/ citizens
- Ex.: Banking apps, Mobile wallets, Online ticketing, Online shopping, ...





John

John's Profile

Disability

Down Syndrome

A Learning
Disability

Needs

Iconography & Pictures

Speech

Easy Language

Low Budget Devices

In Person Interactions

Down Syndrome: A learning Disability

Intelligence Functioning

Adults: <75

Illiteracy

Difficulties with Math

Adaptive Behavior

Difficulties with envisioning

Missing reasoning

Different imagination

Problems daily life

Communication



Easy Language

- Avoid Jargon all time
- Short sentences.
- Easy word variations
 - (ex: a ticket vs your accreditation)
- Avoid Acronyms

Show your ticket at the entrance.
Ring the bell to the left when nobody is here.
Enter your date of birth here:
Type your name here:



Iconography & Pictures

- What is: 烤雞?





Speech

- Add speech interfaces
- Cloud or mobile
- Azure Speech
- Device Text-To-Speech



Azure AI services | Speech service
Azure AI services



Low Budget Devices

- PWD often have lesser income
- Not always the latest (& safest) device
- Publish software:
 - Tested on low-end devices
 - Tested on older Android/ iPhone/ Windows



In Person Interactions

- I know, we are developers & geeks. But...
- Not everything need to be digital
- In specific: Not Only Digital
- In person interactions are sometimes needed
- Human In the loop
- Human Interception
- Digital Twin of Physical Action



2030: Try Again

John



Lisa

Lisa's Profile

Disability

Autism
(child)

Needs

More structure

More Time

More Exercises

Trust

Autism: A Disability or Talent?

Disability

Rigidity

Difficulties with structure

Difficulties with communication

‘Own World’

Challenges with stress

Talent

Deep Focus

Special Interest

Out-of-the-Box

Children on the spectrum

Children

Structure missing

‘Different behavior’

Shutdown

Meltdown

Reasoning/ Rigidity ➔ Seen as ‘stubborn’

Adults

Need help with structure

Help with communication

Often find for most stuff ‘work-arounds’

Or... Coping...



Structure

- Apps, Software & Sites providing structure
- Clear and easy to find opening hours, street address, contact info..
- Straightforward & up to date information



Time

- Provide visualization of time
- Provide option to extend time



Exercises (Gamification)

- Gamification for learning/ study apps & websites
- Gamification for mental health & activity tracking software
- Use dopamine feedback system



Building Trust

- Limit software crashes & errors
- Use settings easy to change
- Right & easy usage of parental control



2030: Try Again

Lisa



Kim & Dave

Kim 's profile

Disability

Acquired
Brain Injury

Needs

Pictures

Speech

Simple Layout

Human Interaction

Dave 's profile

Disability

Dementia

Needs

Loud Devices

Physical Assets

Memories

Human

Disability: Acquired Brain Injury

Disability

Intelligence decrease

Concentration decrease

Due to Accident or
disease

Needs

Simple layout

Human-in-the-loop

Easy Language

Disability: Dementia

Disability

Decreased Brain Functioning

Decreased memory

Not able to learn new things

Staying in the past

Needs

Reminiscence

Loud Devices

Physical Assets



Simple Layouts

- Bright backgrounds
- Large fonts
- Limited need for navigation
- Icons



Loud Devices

- Limit usage of “Maximum Volume” blocker
- Older or specialized hardware



Reminiscence

- Use questionnaires about past life
- Images and quotes like: “On this day in”
- Simulate family interaction



Human

- Human in interception (telephone centers ex: Hospital contact center)
- Human the loop (talking to a person)
- Human interception (make exceptions in online forms)



Physical Assets

- Real money
- Real physical pictures
- Old parking system with buttons
- Easy tickets at public transport, meeting center, ..



Kim & Dave - Coming Soon ..



Persona's

What are persona's

- A possible person
- A recognizable name
- Basic Description of the person
- Positive wording



Persona mapping (Example Hearing Herald)



Personas: John, Lisa, Kim & Dave

Recognizable Name	Basic Personal Information	Topics of Interests	Disabilities & Difficulties
Learning Larry	20 Yo; Male; Volunteer; Single	Pub; His friends; His Grandpa	Down Syndrome; Learning Disability
Authentic Ailsa	15 Yo; Female; Student; Single	Metal Music; Girlfriend; Going out	Autism (Teen/Child)
Brainy Brené	56 Yo; Female; Sickness leave; Married	Family; Nature	Acquired Brain Injury
Remembering Ronald	66 Yo; Male; Retired; Married	Restaurants; Snooker	Dementia

User Research

- Look at your current users
- Look at potential users
- Ask about their difficulties

Integration

Using's Persona's needs in
the Software Roadmap



Linking Persona's Needs

- Lists Persona's Disabilities/Difficulties
- Accessible Accommodations and Approach for each disability/difficulty
- Nice to have for each Persona

Linking Needs (ex: Hearing Herald)

Disability	Needs	Nice-to-Have
Hard of Hearing	Loud device output	Assistive Hearing aid support
	Subtitles	
Not digital minded	Easy Lay-out	Exercise interface
	Bug-free stability	
	Human interception	

Needs: John & Lisa

Disability	Needs	Nice-to-Have
Persona: Learning Larry		
Down Syndrome	Iconography	Pictures
	Easy Language	
	Low Budget device Interop.	Text-To-Speech
	Human Interception	
Persona: Authentic Ailsa		
Autism (Kids/ Teens)	Structure	Gamifications
	Time	
	Exercises	Easy Parental Control
	Trust mechanisms	

Needs: Kim & Dave

Disability	Needs	Nice-to-Have
Persona: Brainy Brené		
Acquired Brain Injury	Pictures	Text-To-Speech
	Human-in-the-loop	
	Easy Language	
Persona: Remembering Ronald		
Dementia	Loud Devices	Reminiscence
	Human	
	Physical Assets	



2030: Try Again.
What About Kim & Dave?



2030: Try Again

Kim & Dave



Q&A || Thanks

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FEEDBACK





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