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ICTS AND ACCESSIBILITY FOR PERSONS WITH DISABILITIES AND SPECIFIC NEEDS: ASSISTIVE TECHNOLOGIES PROMOTING ACCESSIBILITY
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>> MAISARA SATTI: Hello, everyone. We would like to welcome you all today as our talk is going to be the ICTs and Accessibility for Persons with Disabilities and Specific Needs: Assistive Technologies Promoting Accessibility.

We will start with a short video.

(Video playing)

>> The world summit 2021 is off to a good start. There's been sessions since launching in January. There's 1,270 projects nominated. As the forum progresses, we encourage stakeholders to keep an eye out on our agenda for announcements.

There's tracks through March.

There's the ICTs and youth track among others.

We're hosting a series of workshops. Stakeholders from around the world are going to be presenting their activities and using ICTs in the pandemic.

There will be a virtual exhibition space. Various social events will be integrated into the forum with meet-and-great opportunities, frequent posts and engagements and internationally recognized U.N. days and weeks.

Participation in the photo contest is encouraged for stakeholders. Submit your best photos.

In addition, registration for the hackathon is now open with

more than 120 registrants already. We encourage you to build a better future.

We look forward to your participation

We would also like to extend a warm thank you to our partners, without whom this forum would not be possible. Thank you. And we look forward to a successful 2021.

>> MAISARA SATTI: Okay. So we would like to welcome and thank the participants who are joining us today for the ICTs ICTs and Accessibility for Persons with Disabilities and Specific Needs: Assistive Technologies Promoting Accessibility.

So, in a few minutes, we will start the event. For smooth running, we would like to give you guidelines.

We'll take questions through the raised-hand function and chat.

Please note during the event that the participants' microphones are muted. If you would like to intervene, raise your hand. Once you're given the floor, the moderator will unmute you.

The session is recorded and will be available on the event page of the WSIS website soon at the end of the virtual workshop.

And human captioning is being provided during the session.

Okay. We would like to welcome Mr. Jose Rubinger who is with Key2Enable.

Why is it important for governments to invest in technology that empowers people with disabilities. Can you also tell us more about the contribution of assistive technology in the teaching-learning process of people with disabilities and how your company is playing this role.

>> JOSE RUBINGER: Thank you so much for having me and discussing assistive technology in this unique event and learning and from all of your experiences. It's always very important. My name is Jose Rubinger. I started in 1981. So I have a vast experience in this.

As I always say, no one has to be left behind. The increasing use of technology in workplaces all over the world has created opportunities for people with disabilities to remain in or enter the workforce.

So technology can be the key that levels the playing field for individuals with disabilities, if their needs are met through adaptive accommodations.

Governments are in a unique position to harness this prospect and increase employment opportunity for those with disabilities.

They can use their power to influence the private sector to do more to hire and retain workers with disabilities. And, of course, to achieve all this, people with disabilities need their skills to use platforms that allow them to better communicate. We'll need content that will stimulate their brains, family members, and health care providers, they need to know how to use the platforms.

That's why we're all here. We have solutions, platforms, everything they may need for success.

So they need access to adopt platforms that can easily integrate with multiple systems and systems in multiple languages, for example.

However, to understand all that, we have to make something to disrupt this. And it always starts with the problems.

If we do this, if we leverage technology to make them communicate and learn, we'll make them economically sustainable. I think that you also asked about what we have been doing. If I may ask, maybe if we could go to other speakers. If we can come back, I can show my screen. If not, I will be the only one that is talking here.

>> MAISARA SATTI: Yes, indeed, Mr. Jose. Thank you very much.

We would like to welcome Ms. Cathy Holloway who is the director of the Global Disability Innovation Hub.

What do you think the assistive technology fails to be funded within countries and programs and what opportunities do global disability innovation hub see in the next five to 10 years for assistive technology for development.

>> CATHY HOLLOWAY: Thank you very much. To answer your first question, what do I think -- why does assistive technology fail to be funded within countries and programs, I think there's a top-down problem and a bottom-up problem. So from the bottom-up problem, still, we're finding investors do not understand the value of assistive technology. As a community, we're not as good as we could be at demonstrating the value of accessibility and inclusion and then of assistive technology.

So I think there's a good job at this, but, generally, we're not very good.

When you mention assistive technology, it's a lot of things. It's things to help with visual impairment, hearing impairment, switches for people with physical impairment. People don't quite know how to get their head around all of it. That's the real problem.

So that's one problem, and it's the same problem felt from the top-down. From the government point of view, when you're looking to fund the next cancer drug, vaccines at the moment, a hot topic, vaccines, assistive technology, where do you put your money? So within GDI, we partnered with the World Health Organization, UNICEF, and others to bring the top-down approach. How can we strengthen the capacity of countries. To do that, obviously, you have to work with countries. Countries need to be able to put their own plans in place, their own policies, and make sure they're implemented.

I think with education, where ICT plays a huge part with unemployment, there's still a very fragmented space where we could really do a lot better in helping people understand how to bring things together.

I think the second thing from a top-down point of view is to really strengthen the teacher-training. Often teachers -- see, we have this problem where the solutions to the individual, to children, and the problems we see are systematic. Teachers are not being valued, teachers not being trained in assistive technology use

and how to adapt it.

We need to educate innovators to understand this is an amazing space to be in. It's a wonderfully vibrant community, and there's an intent to do social good and to make money for those that are motivated in which ever ways you're motivated.

What do I see as opportunities? I see technology being able to leap-frog things. There are countries we're working in at the moment across Asia and Africa where they can do a much better job at inclusive employment. We don't have the systematic barriers in place. We can start in the right space from the beginning instead of retrofitting it.

Artificial intelligence and big data will power a lot of solutions. The solutions will get much more cost-effective. This computer, this phone, is more powerful than the first computer I used when I was starting out in life. So people have that, even if you're only using just a button phone. It's still powerful. We can get information to people, and that's key to things, I think.

I believe I'm just within my five minutes. I'm happy to answer questions later. I'm looking forward to speaking with others. I will put chats in the link regarding more information.

>> MAISARA SATTI: We'll go to Mr. Hudson, the founder and CEO of Deaf eLimu Plus.

What problems did you have in app development?

>> HUDSON ASIEMA: Thank you so much, moderator. Thank you for this wonderful opportunity, for me to come and present.

The challenges that I have during the development of my app was that the technology is changing very fast, and some of us are just developing as things are changing, and, also, some of these changes don't have content.

(Audio is poor)

>> HUDSON ASIEMA: Also, there are no --

(Audio interference)

(No discernible speaker)

>> HUDSON ASIEMA: That was a big challenge for me. Thank you.

>> MAISARA SATTI: Thank you very much, Mr. Hudson.

We would also like to know what is the best way to teach deaf students if teachers don't know sign language using a virtual online, for example, Zoom or TV?

>> HUDSON ASIEMA: During the pandemic time, most of our deaf students remain at home without learning because there's no interpreter, and the interpreter can't (indiscernible). They have tried to be inclusive, but you cannot use your ICT to look at two things.

They need to see someone who is signing, their body, facial expressions, and just looking at the TV, they do not know how to understand. Understanding from a TV, there's a lot of difference. That's it.

>> MAISARA SATTI: Thank you very much, Mr. Hudson. That was insightful, to say the least.

So now we go to Mr. Muhammad Waqas with WonderTree.

What is the underlying methodology you're using, and why does it work?

>> MUHAMMAD WAQAS: Sure. First of all, thank you so much for having me here. It's really a pleasure, you know, to be sitting among such great people who are doing such great work.

So the underlying technology or the underlining methodology that we're using is gamification. It is engaging, motivating. We have seen through countless examples and countless case studies that we've been able to create that gamification works.

Let me tell you what we do. We take exercises and gamify them using augmented reality. We're using technology to make physical therapy, education, and development for children with special needs accessible, affordable, and effective.

Since I have time, I would like to show a video that explains more of what we're trying to do. If I can share my screen and quickly show a video. All right.

(Video playing)

>> Introducing, Wonder Games, a special tool for education. Enhance your child's motor, cognitive, and educational skills through interactive movement-based games.

The Wonder Games helps strengthen agility, balance, coordination. Measure performance through criteria. Make things more fun. So download wonder games today.

>> MUHAMMAD WAQAS: All right. Thank you for watching the video. I hope you all had sound with the video. The majority of our games are based on therapy within the method that the child is able to use. It makes them motivated because they're submerged into a world where they can see themselves and it motivates them to further play more games.

This is also a cost-effective solution because we're starting out in Pakistan. This is a Pakistan-made solution. In Pakistan, there are not a lot of therapists, special education instructors. What we're doing is having a computer and webcam, you're able to have these children play the games.

In playing the games, they're learning as well. Right now, we have around 6,000 users. We're deployed in schools and institutions and makeshift schools which are not exactly special schools, but they're still working for the children, and we plan on helping out as many children as possible. I hope this answers the question.

>> MAISARA SATTI: Yes, it does. Thank you very much.

I have one more question for you. So, in the long term, how do you think one to three impact the lives of special needs children in the world.

>> MUHAMMAD WAQAS: It's an ongoing process. We're trying to improve the technology as well. Initially, when we started, we were using Microsoft (indiscernible) sensor and hardware for the camera, but in Pakistan, we found that, you know, it was quite expensive getting it and procuring it and buying it. So we were finally able to work out a solution to AI.

So right now, we're using AI technology for the camera.

Simply, we're partnered with the UNICEF and also partnered with Google for optimizing the AI technology and bringing it on mobile phones. So we want to serve a larger population with mobile phones.

You know, the pandemic has also been an eye-opener because a lot of -- all of the institutions were closed. We had a lot of parents who were asking us if there's a home-based solution because we were only providing services to institutions or caretakers. We really believe there's a potential. The future is all digital. We really believe that if you can optimize it, if we can have some more R&D on it, that it can be tailored to people with all kinds of needs, like autism, cerebral palsy, et cetera.

All the games can be molded or adopted to the specific users. Gamification, again, is a very powerful tool. Technology is a very good neutralizer. Everybody can afford, hopefully, some type of technology. So we do see this solution crossing borders. We feel this type of solution, which will be included for the advancement and development for special needs children. We hope to play a major role in, you know, benefitting or making the life of special needs children better in the future.

Fingers crossed.

>> MAISARA SATTI: Thank you very much, Mr. Muhammad.

We will now go to Mr. Bryce Johnson, who is the inclusive lead at Microsoft Devices.

Mr. Bryce, can you please tell us how did your team get the idea to create the Xbox adaptive controller.

>> BRYCE JOHNSON: Sorry. I had to unmute.

Thank you for inviting me.

Thank you, Cathy, for your confidence. That's really great.

One of the things, during the pandemic, that we're focused on at Microsoft is thinking about how we can employ and get people with disabilities back working. You know, any games that have been made in recent years have kind of been erased by the pandemic. So it is imperative for us to do that.

But I am here to talk about play because play is also important. I'm one of the inventors of this. We talked about the Xbox adaptive controller. I'm wide, but I'm not that wide. This is a device that we made specifically to empower people with limited mobility to play video games.

If you think about a standard game controller, this is what we would call in the industry an eighth-generation game controller. If you go all the way back to the Atari, that was generation one. We're currently on generation nine. This is a last-generation controller. These devices have been optimized over all those generations to add more buttons and to give people more functionality, but they've been optimized around a primary use case that makes a lot of assumptions around how they're used.

These things assume I have two hands to hold it, and that I have two thumbs for these thumb sticks. It assumes I have the index finger to reach around to these bumpers and triggers on both sides.

It assumes I have the strength and the endurance to hold it.

And the thing about this device -- even though we love this controller, our beloved Xbox controller -- we had to recognize, at Microsoft, that if a person couldn't use this because of a disability, that this was the problem. Right? We created the problem. It's not about the person. It's about us. We created this device. This device was the barrier that someone was coming across when playing games.

The back of the controller, I'm going to show this. Cathy mentioned a switch. The adaptive controller is a switch interface for gaming. It allows you to build a controller around where you have movement.

So a lot of people will come to me and say things like, I need a one-handed controller because I only have one hand. And they're coming from place where they're telling me what they don't have, and what I really want people to do is tell me what they do have because then we can define a controller that fits them. Right?

So tell me, like, I can move my head. I can move my elbows. I can move my feet. I can pinch my knees together. These are the types of things we look for when we're defining a controller for people with limited mobility.

>> MAISARA SATTI: Thank you so much, Mr. Bryce.

So what advice do you have others who want to practice inclusive design?

>> BRYCE JOHNSON: I think we've learned quite a bit at Microsoft over time. You can look at more on the website. You can look it up and find it.

We have recognize exclusion, learn from diverse, and solve from one to many.

Recognizing exclusion involves us recognizing that this was the problem. We created it. We have to go out into the world and see people interact with things so that we can understand the barriers that exist in their lives.

Learn from diversity is all about the idea: Nothing about us without us.

That's what we strive for. It's not easy, especially at Microsoft. We are such a large company that it is very comfortable and easy to stay within the walls of Redmond. Right? But if we do that, we're basically not going out into the world and interacting with the people that need us.

So a lot of times, when the controller was first launched, people would ask me how we tested the device and how we validated it. The answer was we kind of did. We had beta testers and did that. But we strove to design with the community and not for the community. Right? So we included people with disabilities from the very beginning of the process. They were our inspiration and our partners and our stakeholders.

We worked with five charities. We worked with able gamers. We worked with special effect. We worked with war fighter engaged, Craig Hospital, and more. We worked with those while we were still secret, which, for a hardware program, is very unusual. And we worked

with those folks and brought in about 75 people with varying ability to use the controller.

So we had these stakeholders along the way in the process. So that was really important.

The last one, solve for one to many. It's the idea that we take these solutions that are inspired by how people can be more effective with using technology, and we find the alignment points, and we bring those things together.

So these big buttons are great. Whoops. These big buttons are great for using your feet, but we designed it in such a way that you can use this controller at time for this, just for people who need different types of button input.

Finding the overlapping alignment points is something you can only do by working with the community. It's an exercise of optimizing and then going back out and coming back in. Right? Because what happens a lot of the time, if you overoptimize, optimization, like the optimization that assumes someone has two hands to use this, that optimization can sometimes lead to exclusion. So you have to check yourself.

That's kind of how I would answer that.

>> MAISARA SATTI: Yeah, nothing for us without us.

Thank you, Mr. Bryce.

Cathy, would you like to add anything or share with us what you wanted to share earlier?

>> CATHY HOLLOWAY: Me? So, yep. I'm happy. I feel a bit strange because you keep calling me missus, and I'm not married. But that's okay.

But what we just heard, you have to co-design with people and not just design it for them. But that goes with the wider system, right? So if you only design with, say, users of a technology and you don't design with the health care professionals or the educational professionals or even the parents that are the gatekeepers in some of these conversations, then you're in trouble.

We often have really good technologies that are designers, everybody loves them. But it lacks a fit in the system or model.

Microsoft has amazing achievement for a company its size, but if you're a start-up, how do you get people to buy into your idea. You have to give a social return or financial return on investment to people investing into you. You need to be able to quantify that early on.

If you look at technology readiness levels, we look at things that don't get the data that's needed to get the investment, and they hit that value death, and they die. That's sad because they're great ideas.

GDI Hub, we do everything in partnership with others. And we have the impact fund. We're trying, through UK-aid funding, to solve this. All the technologies we've seen seem to be developed with people, which is absolutely essential, but I really do stress the system's necessity as well.

>> MAISARA SATTI: Thank you very much. I will say Cathy this

time.

>> CATHY HOLLOWAY: Which ever.

(Laughter)

>> MAISARA SATTI: Okay. Thank you very much.

We would like to go back to Mr. Hudson. Can you please share your presentation with us?

>> HUDSON ASIEMA: (Indiscernible).

>> MAISARA SATTI: I'm sorry? Yes. We can see.

>> HUDSON ASIEMA: So, as I told you earlier, I talk about Deaf eLimu Plus. This is my own company that I started. This company will make innovative education and how people can access information through sign language.

When I decided to develop this app, I realized there were a lot of problems.

You can see that (indiscernible) but the deaf couldn't (indiscernible).

The app I developed was here and later I was able to make Kids Pro. Kids can learn at their age.

Next.

I'm the first deaf to develop an app in all of Kenya. And most of the people came to learn sign language. Sometimes I will use a pen and paper to get exactly to what they want to do, and that would take a lot of time.

Next.

I was able to meet with the president (indiscernible) and I was able to demonstrate my demo. He was really excited and proud of me, and he was very supportive. I moved to the (indiscernible) that was work with the Facebook Messenger.

(Audio interference)

>> HUDSON ASIEMA: This shows a sign, and you're able to know (indiscernible).

Next, please.

It can be used on iOS. Two can be used offline, and one can be used online. The one online is for fingerspelling. This helps people to understand how to (indiscernible) and this one is for adults. I thought about the children, how will they access. (Indiscernible).

(Audio is poor)

(Audio interference)

>> HUDSON ASIEMA: Now, about the accessibility, deaf community in Kenya, they advocate for accessibility to information and services during corona time.

There's a lot of change in accessibility. There's a lot of high demand, especially during the pandemic. When the government announced everyone should go back home, the deaf were (indiscernible) the schools were supposed to be closed, and everybody was to go back home, but the deaf are worried what they were going to do. The hearing could get education through online.

They wanted to access information just like any other person. When we have this app, we're also able to have information

services because there's access online and on TV.

Accessibility is in high demand right now.

For example, in remote areas, there's a lack of electricity. There's a very big challenge for students.

(Audio is cutting in and out)

>> HUDSON ASIEMA: Also, the deaf need technology. For example, in Nigeria, there's a foundation that will teach sign language on camera and do some editing, but after COVID-19, then nothing was going on because they were all separated, and they were not able to access any education online.

Thank you.

>> MAISARA SATTI: Thank you very much, Mr. Hudson. Truly inspiring.

We would also like to go back to Mr. Jose. Can you please show us what you wanted to show us earlier?

>> JOSE RUBINGER: Of course. Let me show my screen here. Can you see me screen? Okay. Thank you.

This is what we have been doing for education for people with disabilities. I would like to say that we started this in Brazil. We usually say that we need to build a path. When we say people of determination, I'm here based in Abu Dhabi. They call people with disabilities as people with determination because they need to thrive and expand their critical thinking and, of course, make them communicate their skills.

I will tell a little short story about this.

This is Amanda. She was born with cerebral palsy. Now she's being the teacher. She's teaching this little kid here that does not have a disability how to play a game.

It doesn't matter to this kid that Amanda cannot even talk to her, but actually they are having a great time here.

Here is the same Amanda. She's playing with Joao Paulo. He's a gifted child. They play for more than two hours. It does not matter if they cannot communicate with a voice, but they can play. They're engaging.

Our solution was designed because of this man. He was born with cerebral palsy. He created a way to better access his computer. Together with him, we created what we call the Key X. It's a keyboard with colors. It combines letters and symbols to have the same commands, including a mouse function so they can use a computer. If they can use a computer, they can do whatever they want.

For example, Ellison is 12 years old. He was invisible in the classroom because no one wanted to play with him. He was learning, but he could not express himself. He could not say how much he was learning from the experience inside the classroom. As soon as our solution arrived in his school, he learned how to use it. So he started using a computer with Microsoft. With Microsoft Word in this case.

He asked his teacher if he could write a book. His teacher asked, Do you have a story to tell us?

He said, Yes, I have many.

It was published in Brazil, the third book, last year.

So now Ellison is a well-known writer inside his school.

The same -- why does this happen? Because we have this educational platform because together, with the keyboard, it allows people to communicate, to learn. They can do whatever the curriculum and language, the teachers can do everything here in the platform. So they can drag and drop, and they can continue using what they are already using but in a very, very funny and very interesting way. So all of them can play.

This made Julia get back inside the classroom because before she was inside a place program. So now she is back.

She's now playing many, many games because learning and gaming, we are always seeing these kids doing this. And she's the best doing it with Angry Bird. She was also the best math student in 2016 and 2017.

So we just have to give them the right moment, and we know they can do amazing things.

Thank you very much, again.

>> MAISARA SATTI: Thank you. Thank you so much, Mr. Jose.

So now we'll have some of the Q&A. We have a question for Mr. Muhammad Waqas.

The programs seem great. Do you think they can help older generations with disabilities?

>> MUHAMMAD WAQAS: Thank you so much for asking the question. Yes, gamification can help all generations with the problems with their learning with development. In fact, we have had two case studies. One of them, the recent one, was that in Hungary, our games were being used for the video therapy and rehabilitation of patients with stroke. They recorded a video. They sent us a video, and that was really -- that made our day and our entire month to see that somebody was using our game so creatively.

It essentially boils down to the basic -- the objective of the game is the same for the video therapy or rehabilitation for the video therapy or skilled development of a special needs child or even a very early child going through early childhood development. We all learned the same thing.

It's great enabler and a great motivator.

>> MAISARA SATTI: Thank you so much, Mr. Muhammad.

We also had a comment from June addressed to Mr. Bryce saying that, You're right. A lot of products are designed with a sound person in mind instead of considering the needs of people with limited mobilities. This is the first time I realized that for firms designing the games and equipment, it is necessary to take the needs of people of disabilities seriously. Good job.

>> BRYCE JOHNSON: Thanks. I think at Xbox is one of the things we talk about is the fact that there are billions of gamers on the world. We have members on our own platforms that are larger than many countries. So, of course we have to take this seriously. It's our responsibility to make sure that when everybody plays, we all win, to use one of our tag lines. So thank you.

>> MAISARA SATTI: Also, we have a comment from Wei, if I'm

pronouncing it properly.

It says, if it's a very educational session for me. Many products are very insightful and inspiring. It would be nice to have them promoted to the world.

We agree a lot.

So, yeah, thank you all for joining us today and being around.

We would just like to end the session by saying that people with disabilities represent 15% of the world's population, meaning about 1 billion people globally, given the growing proliferation of devices in our lives. It is vital that persons with disabilities or rare diseases can access information and technologies and use ICTs for their social and economic development.

As digital accessibility is key for respecting everyone's right in an interconnected world as it enables digital inclusion for people regardless of age, gender, ability, or location.

Common examples of accessibility features include voice-to-text conversion, subtitles for the deaf and hard of hearing.

There's a key priority in various global commitments related to inclusiveness, such as the convention rise of persons with disability, the sustainable goals, et cetera.

Thank you for attending. We'll just watch a video now.

(Video playing)

¶ (Music playing) ¶

>> MAISARA SATTI: Thank you again, everyone. I hope you have a wonderful day. I hope that you found what we showed you very helpful and insightful. I did. Hopefully, I will get to talk to you guys soon.

>> CATHY HOLLOWAY: Thanks, everybody. Take care.

>> Thank you. It was a pleasure. Bye-bye. Take care.

>> Thank you all.

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