



## **PIONEERING SCOTTISH TECHNOLOGY EMPOWERS DISABLED CHILDREN**

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Scottish scientists have developed the first technology of its kind in the world which allows children with communication difficulties to take control of conversations.

How was school today? is a software system which uses a combination of technologies to enable children with disabilities such as cerebral palsy and learning difficulties to have conversations in a faster, more interactive way.

The system is the result of a year long collaborative project between computing scientists from the Universities of Dundee and Aberdeen and Capability Scotland.

Dr Ehud Reiter, from the University of Aberdeen's School of Natural and Computing Sciences said: "How was school today? uses sensors, swipe cards, and a recording device to gather information on what the child using the system has experienced at school that day. This can then be turned into a story by the computer - using what is called natural language generation – which the pupils can then share when they get home.

"The system is designed to support a more interactive narration, allowing children to easily talk about their school day and to quickly answer questions."

This innovative project was funded by the Engineering and Physical Sciences Research Council (EPSRC) and pupils from Capability's Corseford School near Glasgow were the first to trial the new system.

Sue Williams, headteacher at Corseford said: "In the week we used the system we found it very useful to pupils, teachers, therapists and parents alike. It allows children to take control of the conversation without having to rely on help from us."

Rolf Black from the University of Dundee's School of Computing explained: "For a child with severe motor disabilities and limited or no speech, holding a conversation is often very difficult and limited to short one to two word answers.

"To tell a longer story a communication device is often needed to form sentences but this can be very time consuming, putting a lot of strain on holding and controlling the conversation."

Nicole Vallery and Rebecca Clelland were two of the pupils at Corseford to test the new software.

Nicole's mum, Jan, said: "We really enjoyed using How was school today? and hearing Nicole's story. The programme enabled her to talk easily and answer questions quickly, prompting more interaction and giving us a very detailed insight into her day."

Dr Annalu Waller from the University of Dundee's School of Computing added: "Relating daily experiences is an essential part of developing both language and personality. With How was school today? children are able to use computer generated language to share their own experiences in a more independent and natural way."

Plans are now in place to further evaluate the system to examine how it could be used to support children with different levels and types of impairments, and widened out to incorporate conversations around other themes.

After the promising results and overwhelming support at Corseford, the prototype is to be used with more children over a longer period of time. The pupils who have already trialled the technology are delighted to have the chance to test it again.

Rebecca said: "It was something different, I enjoyed it."

Nicole added: "I was happy to take part in How was school today? It made me feel good about myself."

## **ENDS**

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## **NOTES TO EDITORS**

Images are available on request – contact Kelly Cromar on 01224 272960.

### **How was School Today?**

A child using How was school today? can create a story describing what they did during their day, and then use the technology to tell it to a parent or guardian.

The system involves a sensor being attached to the child's wheelchair which tracks and records where they are going within their school day.

Swipe cards are then used by the teachers or carers who interact with the child to tell the system who the child has met and what activity they have been involved in.

A recording device is also incorporated in the system, which allows people who come into contact with the child to record more detailed information about the events which have taken place within the youngster's day.

The sensor data is used to generate simple sentences using natural language generation techniques which summarise events during the day.

Natural language generation (NLG) is used to convert the sensor data into English, e.g. if the sensor data places the child in the hall at 1.30pm, the system would generate a sentence such as "After lunch I went to the hall". NLG also allows the system to generate appropriate comments, e.g. if the child came into contact with a person called Anne who swiped her card to register her presence, the system might generate: "Anne was there." If the child then chooses to add a positive comment by pressing a smiley face, the system would automatically generate "she is nice", because it knows that Anne is female.

The long term aim of How was school today? will be to assess how the technology could be integrated into the communication devices used by children with severe motor disabilities.

### **Corseford School**

Corseford School in Kilbarchan provides day and residential education, along with respite care, for children between 5 and 18 with severe and complex support needs

### **Capability Scotland**

Capability Scotland campaigns with, and provides services to, disabled children and adults across Scotland, supporting them to achieve equality and have choice and control in their lives.

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