

Overview

Electronic Sentences (ES) is a suite of software and hardware tools, along with supporting curriculum materials, that uses high-level electronic elements to allow young children to easily develop age-appropriate systems to solve real-world problems. These problems are supported by courseware engaging children in thinking about real-world design scenarios.

As the name suggests, systems are created by assembling grammatically correct, natural English, sentences that are scanned to create a corresponding electrical system. ES is designed to help children develop literacy skills, logical thinking, design thinking and systems thinking.

ES is designed to be used in conjunction with a wide range of modelling materials, which teachers will select with an eye to suitability for the children using the system.

The Target

The target age for ES is anywhere between, in England, EYFS and Key Stage 1 and, in the US from grades pre-k-5. The design has focused on useability for the youngest children in these ranges, i.e., children from 4 years on, while retaining attractiveness for older children, with the acknowledgement that teachers will use their judgement about when best to introduce ES.

The Team

ES is being developed by a US/UK team, including:

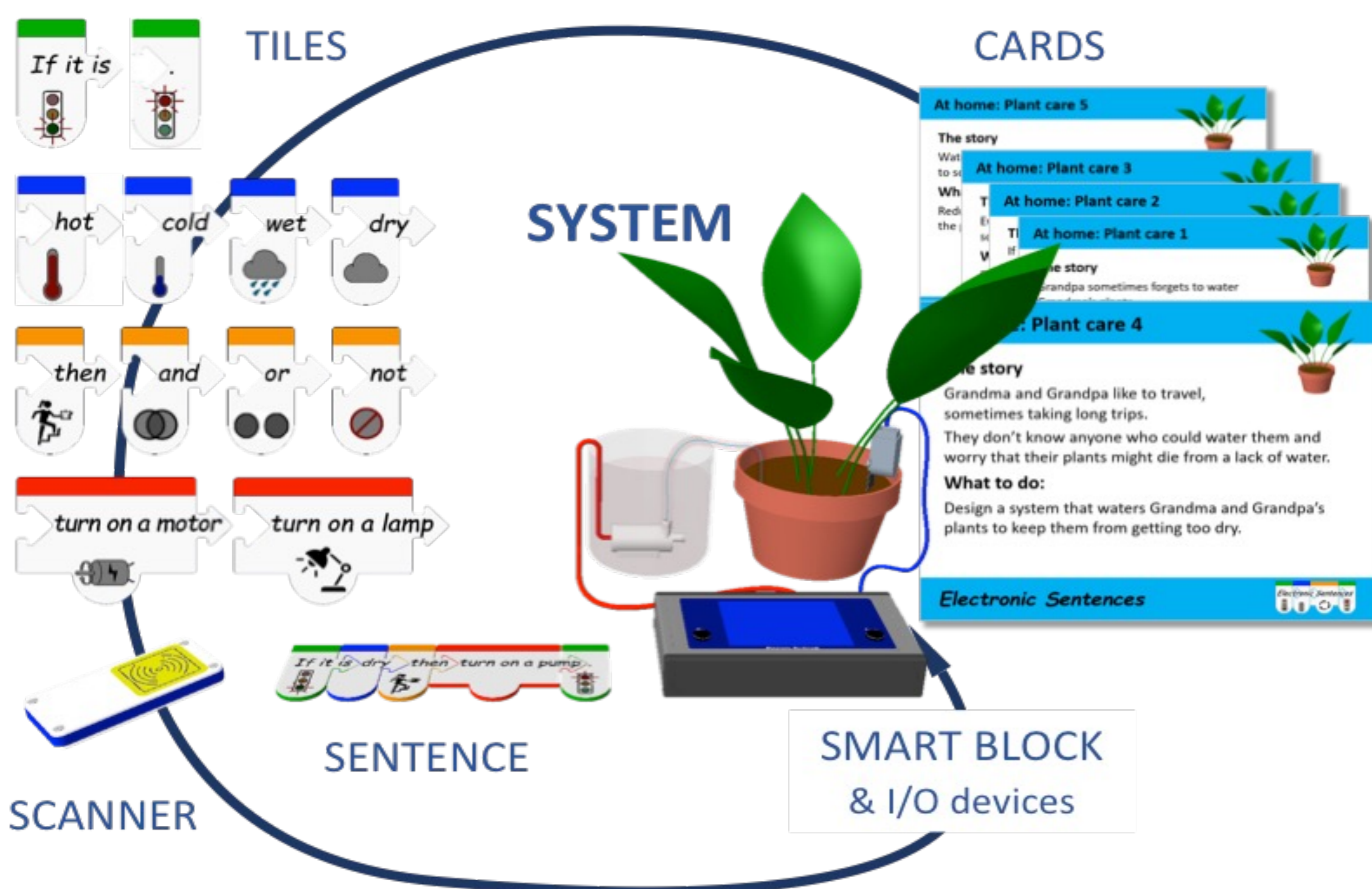
UK: Torben Steeg (MMU, BCU, Consultant), Tim Brotherhood (Consultant), Ben Sedman (MMU).

US: Ron Todd (DWL, ITEEA Senior Fellow), Frank Cappelle (Consultant), Steven Barbato (ITEEA, Consultant)

The Elements

- **Activity Cards:** These provide a range of design contexts that range from relatively closed to more open, requiring solutions that range from the simple to the more challenging.
- **Word tiles:** These are used to construct control sentences. Each tile contains an RFID¹ sticker. These are designed to reinforce good literacy habits
- **Scanner:** When passed over a completed sentence, the scanner reads the tile RFIDs and passes the information to the controller.
- **Smart Block:** this parses the RFID information into a control sentence. First it checks that the sentence is syntactically correct, then it translates the sentences into a control program.
- **Input and output devices:** The smart block screen shows the child the i/o devices that are needed for the sentence and indicates the controller ports these should be plugged into.

Electronic Sentences in Action



Early Piloting

Limited pilots of a prototype, fully working, system have taken place in US classrooms. Similar pilots are currently underway in UK early years/KS1 classrooms.

These are focused on exploring the effectiveness of ES in achieving its multiple aims - the development of:

- literacy skills,
- logical thinking,
- design thinking,
- systems thinking.

These trials will inform further developments in the various elements of hardware, software and courseware that will be required before the product is made widely available.

Footnote

1. RFID: Radio-frequency identification

Further information

<https://www.iteea.org/us-uk>

