STEAM City Kit: Storytime with a hands-on maker touch

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FIGURE 1
Part of the story "O Dinossauro Tomé-Rex", which will afterwards promote the activity illustrated in Figure 2.

FIGURE 2
Example of an activity held at Fábrica Centro Ciência Viva using the STEAM City Kit.

The project STEAM City Kit was developed within a wide range of other projects in the Aveiro Tech City project. Its main purpose is to provide primary school students and teachers with hands-on activities that combine challenges and skills from different fields, such as physical computing, arts and crafts, and storytelling. Promoting skills in young people aged between 5 and 7 years in IT, electronics, and logic faces several difficulties. On the one hand, reading and comprehension skills at these ages are not yet fully acquired or consolidated, which prevents the use of the numerous teaching materials and tools available for other age groups. On the other hand, we see a scarcity of teaching resources available in the market and education research specifically for this age group since the introduction of knowledge in technology involves a certain degree of technical complexity. The STEAM City Kit project empowers the role of narrative and storytelling in teaching IT to children by placing the student as an active agent at the centre of the learning process. The inclusion of stories combined with content customization strategies creates a strong feeling of empathy and motivation in the child to carry out the activity. Two activities were designed and developed, which resort to stories, content personalization, physical computing, sensors, and actuators. Besides a Groove Beginner Kit for Arduino®, the kits also include two activity books with original children's stories, developed by team members and can be used in storytime sessions to provide a context for the activities done afterwards. Over 900 kits have been distributed to the more than 30 TechLabs in schools in the municipality of Aveiro, and a multidisciplinary team from Fábrica Centro Ciência Viva de Aveiro has provided training and support for using the kit. We hope this experience can spark students' interest in physical computing and programming by bringing a hands-on maker touch into the equation.