All Aboard

Uma plataforma para ensinar programação

Master in electronic and computer engineering

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1ST SYMPOSIUM OF APPLIED RESEARCH

BACKGROUND

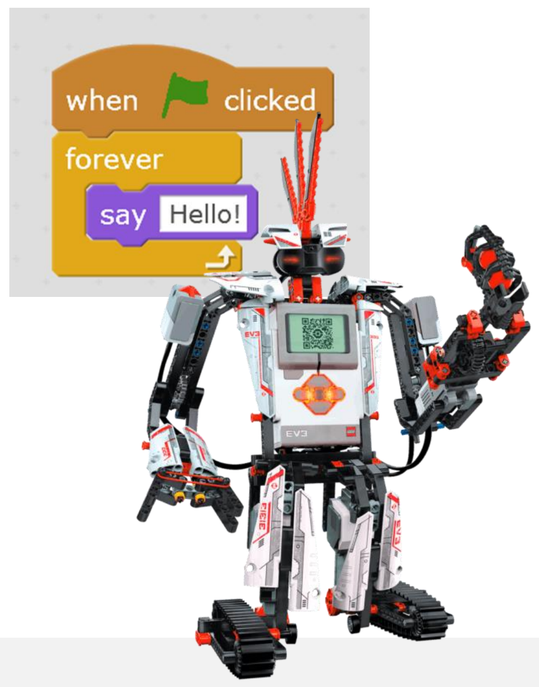
The teaching of programming languages ceased to be a specific educational area of technology courses and is now an essential tool to other levels of education. In the Portuguese educational context, programming is the area of innovation experience and motivation, already in primary school. Teachers use the Scratch (MIT) , the Robot Lego "Mindstore" and the Arduino plataform. The teaching method is based on visual languages like "pull and drop blocks". However, some difficulties are pointed out as the little experience of teachers, lack of specific training and few material resources.

OBJECTIVES

Comparing education for children of programming for hardware or software;

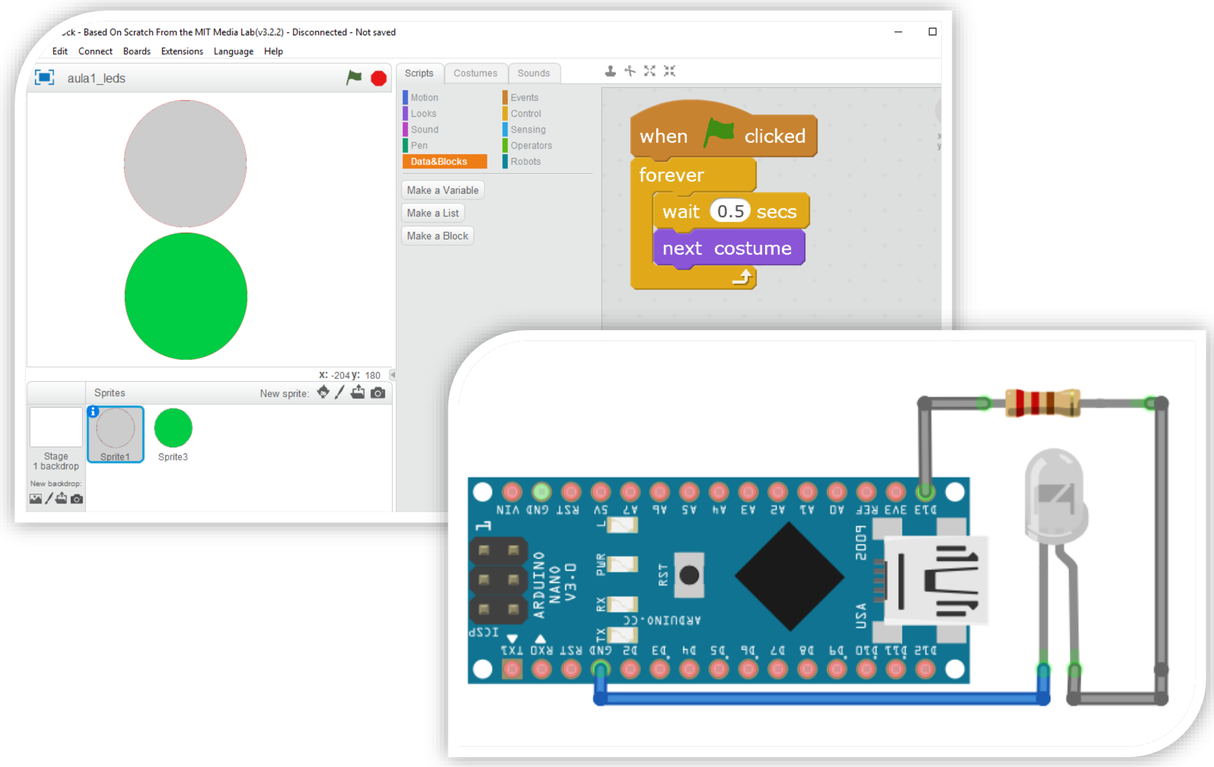
Studying teaching methods / means of hardware programming ;

Developing a kit of low-cost programming teaching with hardware ;



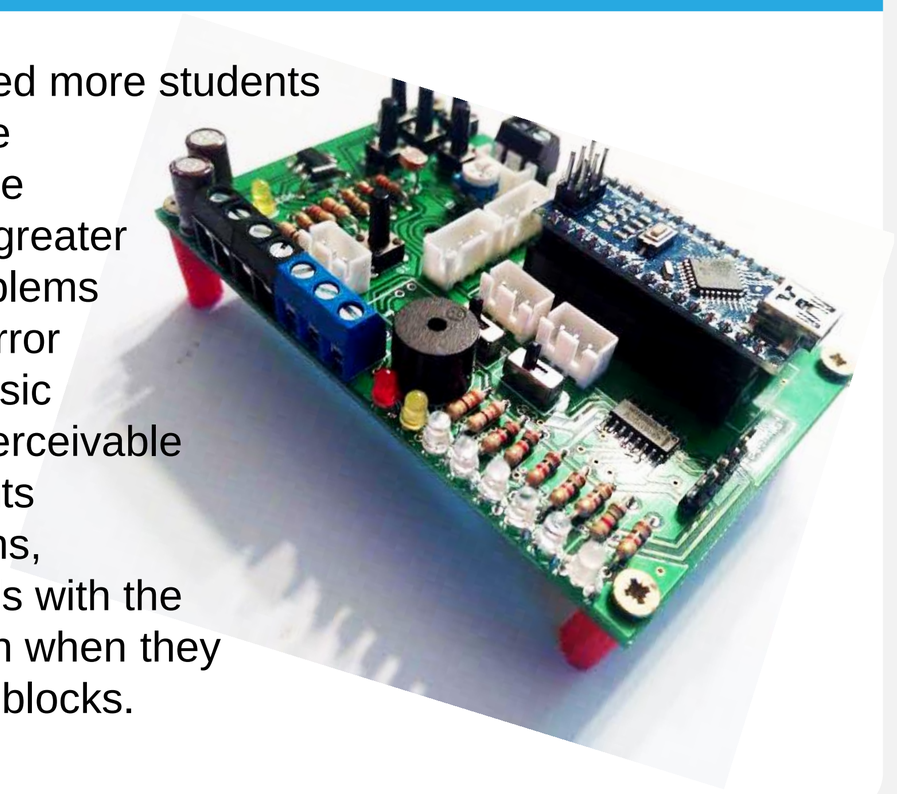
METHODOLOGY

The study was developed in the Agrupamento de Escolas Vale do Tamel – Barcelos, with students of various levels of education . A group of students only experienced programming in visual language with blocks ("CodeBloks") using Scratch. Another group experienced programming only in code using the Arduino and the other one experienced both forms of programming. The students were asked to solve various challenges using algorithms and known programming functions. They were also invited to address more complex challenges and, in this case, to change the codes for electronic components, building their own programming kit hardware.



RESULTS AND CONCLUSIONS

The kit / platform developed allowed more students to practise programming with more motivation and, consequently, more commitment. Note that there was greater participation of girls in solving problems based on kit with hardware. The error detection and understanding of basic programming functions is easily perceivable programming to hardware. Students learn easily how to control functions, variables or programming protocols with the kit, but they do not have this notion when they use them in programming only for blocks.



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