

EMBEDDED INTELLIGENT CAPABILITY OF A MODULAR ROBOTIC SYSTEM

ABSTRACT

The last few years have witnessed an increasing interest in modular reconfigurable robotics for education, inspired robotic research, and space applications. This paper presents the latest results of the Cube-M modular project. Firstly, an overview of the research achievements in modular robot is given. Then the new modular robot Cube-M with one degree of freedom, an improved version of the Y1 modular robot, is presented. After that, the discussion focuses on the realization of a distributed hardware and control. Each module has embedded intelligent capabilities with an independent onboard controller to enable the realization of completely modular design. In the end, a snake-like robot prototype is built to confirm the feasibility of our design principle. In this paper, our focus lies on the chain-format. In 1D, 2D and 3D chain robots are classified according to their topology. 1D-chain robots are like snakes , worms , legs, arms or cords . They can modify their bodies to adopt different

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