Motion Game Controller

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Abstract. *The motion game controller is a system for controlling specific functions of games using user motion. The system operates based on deep learning and can be divided into two applications: the controller and the application environment. We use ESP32-CAM cameras to capture the image, providing a resolution of 320x240. We wirelessly obtain this image using an HTTP server running directly on the ESP32-CAM device. The system reads data from the ESP32-CAM server using an endpoint created on the server. The system consists of several detection algorithms, including a person and hands detector. For each detection algorithm, we use a separate camera. With the help of these detectors, we recognize individuals and their gestures in the image. The recognized objects are further processed, and their position is determined based on the image's shape. From the obtained data, we create data objects sent to the application environment using technology based on the chosen version of the controller. The data object is then used in the application environment according to the specific needs of each game. The application environment also has pre-built keyboard control functions for use in games outside the application environment.*

Keywords. deep learning, computer vision, controller, ESP32

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