Wall-climbing Reconnaissance Robot Based on WiFi Technology

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The purpose of this research is to control a wall-climbing reconnaissance robot using wifi technology. My research entailed designing the structure of the robot, selecting a wifi communication module, programming a mobile phone-based application and finally testing the robot. The robot operates under the functioning principles of negative pressure adsorption, four-wheel drive, and is controlled by a phone-based mobile App. The project contains the following innovative points: 1. The seal providing the negative pressure space between the wall and the robot is made of inflatable TPU material, which is abrasion-resistant. 2. The frame of the robot is made of a very light material called “photosensitive resin”, which is produced through the 3D-printing technology. 3. The wifi communication system consists of an embedded wireless module, which can transmit the digital signal and the video signal simultaneously. 4. The operating App is based on the Java language and the Android system, and can make the robot simpler and more intelligent. The technology of this project is intended to be used on home-use robots after further research and development.

Awards Won:

Thirty Meter Telescope: Award of $1,000 for Water Technology