Soft Bionic Starfish Robot Based on Suckers

Jiang, Chengyue (School: Shanghai Pinghe Bilingual School)

In the research of aquatic robots, many bionic robots have been invented, such as bionic fish, bionic water snake and so on. But these bionic marine creatures have many disadvantages. For example, they are easily affected by the water flow and become difficult to control, while the starfish lie on the seabed. When the water flows, it will exert a downward force on the starfish, so that the starfish will cling to the seabed and will not be washed away by the water flow. Starfish can also use foot suction cups to adsorb on the rock surface, so the research on bionic starfish is very important. The bionic software starfish studied in this project is composed of five silicone feet with hardness of 10 and a main body. The steering gear cable is used to pull the starfish feet. We use a small battery of 4.2V to power the steering gear. Each steering gear can rotate 180 degrees to pull the starfish foot. After the steering gear rotates 180 degrees, the starfish foot tip can bend more than 60 degrees. The steering gear fixing bracket is spliced by 2.8mm thick wood plates. As the starfish is to be tested in the water, the waterproof of the control device is also studied in this project. The starfish main body adopts 3D printing technology and nested method to make the sealed bin. In addition, the project uses Bluetooth communication module to transmit data, and sends instructions through mobile phone to control the movement of starfish. This project has produced the first generation of software starfish robot. The movement on land and water has been basically realized

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