A Microfluidics Based Flexible Tactile Sensor for Collision Avoidance of Robotic Arm

Technology Overview

Robotic applications are widely used in our daily lives, which has led to the emergence of interaction and learning issues in robots. For instance, there is a possibility that a robotic arm may cause harm/damage to human/object with which it is interacting. Therefore, there is a need to integrate tactile sensors onto the robotic arm to prevent such collision.

This technology uses liquid-based thin film microfluidic tactile sensor of high flexibility. The sensor is integrated onto a durable fabric to cover different parts of the robotic arm for collision avoidance. Any collision that occurs will immediately trigger a safe stop signal to the controller and initiate the robot arm's braking sequence.

Features & Specifications

- High sensitivity i.e. the tactile sensor can detect an
- extremely low-pressure force of 0.1N
- Fast response
- Microsize
- Lightweight and deformable
- Flexible and stretchable





Customer Benefits

- Easy to integrate onto any portion of the robotic arm
- Affordable

Potential Applications

- Collision avoidance system in robotic and automation industry
- Force detection tactile sensors

Collaborators





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