Multi-Sensor Based Glove Control of An Industrial Mobile Robot Arm

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Purpose of the Study

- Design a mobile robot arm that can imitate human actions (mobility and grasping).

- Design a multiple sensor glove for the mobile robot arm control.

- Make the system convenient to use by making it wireless and the user interface simple.

- Equip the system with a monitoring and positioning device.
Idea of the System
Multiple Sensor Data Glove

- Microcontroller: Arduino Pro Mini
- Battery: 12 Volts
- Two Bluetooth master modules for transmitting data/command to mobile robot and robot arm
- Three pressure sensors (1 for mobile robot and 2 for robot arm control)
- Flex sensor for mobile robot control
- Inertial Sensor for determination of control mode
Captured photo in the front of mobile robot arm.

Mobile robot trajectory from StarGazer indoor positioning system.

Equipped with a camera and an indoor positioning system, we can determine the location and the situation of the mobile robot arm's environment.
The initial objective is to get closer to the target:

The objective is to get the target object using the robot arm:
Conclusions

- Mobile robot arm can reduce the risks of accidents in various hazardous work environments.

- Multi-sensor data glove is ease for the remote operation of mobile robot arm by the combining multiple sensors.

- The addition of monitoring and positioning increases the safety of the mobile robot arm.