

研究タイトル:

EOG・EMG 計測を用いたロボット操作法の開発



氏名:	MUHAMMAD SYAIFUL AMRI BIN SUHAIMI / アムリ	E-mail:	amri@gifu-nct.ac.jp
職名:	特命助教	学位:	博士(工学)
所属学会・協会:			

キーワード: 生体信号 (EOG&EMG)、信号処理、制御工学、画像処理

- 技術相談
提供可能技術:
- 眼電 (EOG)・筋電 (EMG) の解析法
 - Matlab・C/C++ のインターフェース開発
 - 生体信号に基づくロボット制御法

研究内容: Robot control method based on EOG and EMG

Background

A non-physical interaction has been an interest in the control method in recent years. The conventional control methods that rely on hand and leg manipulation are incapable of being used for those who are physically disabled. Physically disabled people such as Amyotrophic lateral sclerosis (ALS) patients are paralyzed from neck to toe. They are constrained to do interaction by using their eye, mouth, or head movement. Thus, bio-signals from the eye (EOG) and mouth (EMG) as the interaction alternative is proposed.

Objective

To develop EOG and EMG control methods for robot operation. The robot is a part of the welfare application for physically disabled people.

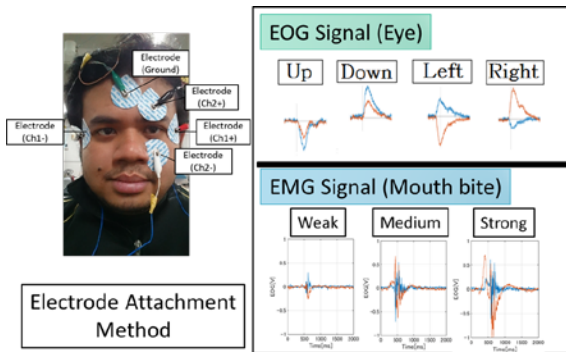


Figure 1: Measurement method and analysis

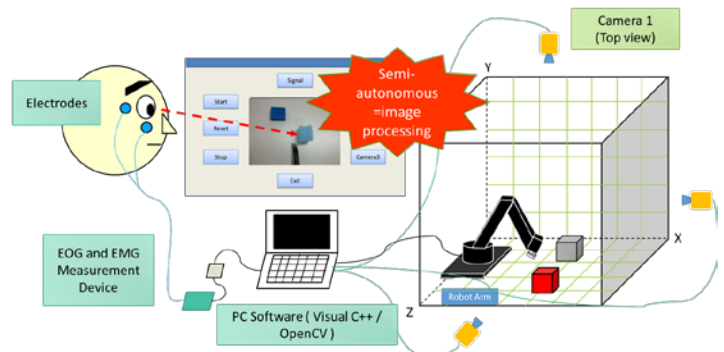


Figure 2: Robot operation system

Research Achievement

- 1) Enhanced the EOG and EMG signal stability by proposing a custom-made mask for the electrode attachment method
- 2) Improvement of EOG gaze estimation accuracy by developing a calibration method based on affine transformation.
- 3) Investigation on robot control performance between two distinctive EOG gaze methods; the eye gaze direction and gaze estimation.

提供可能な設備・機器:

名称・型番(メーカー)	