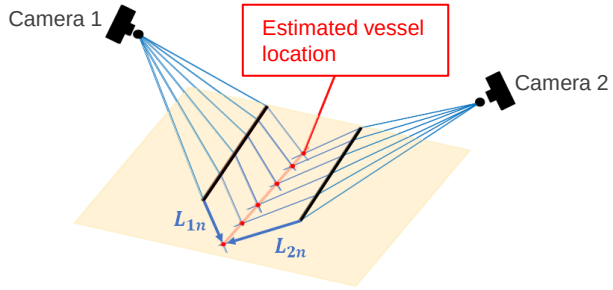
Hirosaki Univ. Technology



Automatic injection device

To realize a completely non-contact automatic puncture robot!

Overview

In today's clinical medicine, blood sampling is frequently used to diagnose and treat diseases, and the problem of shortage of medical workers has been pointed out. In addition, it is difficult for clinicians to find blood vessels with the naked eye in some patients, and there is a risk of failure in the procedure, as well as serious problems such as needlestick injuries and infections caused by blood contact. To solve these problems, automated robotic blood sampling may be effective.

Various types of blood sampling robots have been studied, but many automated puncturing robots use ultrasonic diagnostic imaging equipment. In order to prevent the spread of infectious diseases, it is ideal to estimate the position of blood vessels and achieve automated puncturing without contact with patients.

The present invention relates to a method for identifying the position of three-dimensional blood vessels using two infrared cameras without complete contact. By considering the difference in refraction depending on the viewing direction of the cameras, it became possible to identify the position of blood vessels with high accuracy.

Product Application

- Vessel Positioning Device (Humans and Animals)
- Automatic blood collection robot

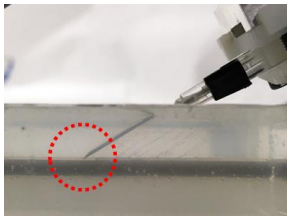
IP Data

IP No.	:	JP6532042, JP2021-106414
Inventor	:	SAGAWA Koichi, NAGAI Chikara, ENDO Yoshio
Admin No.	:	K23-019, K23-028

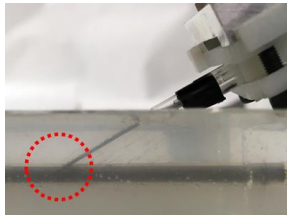
Features・Outstandings

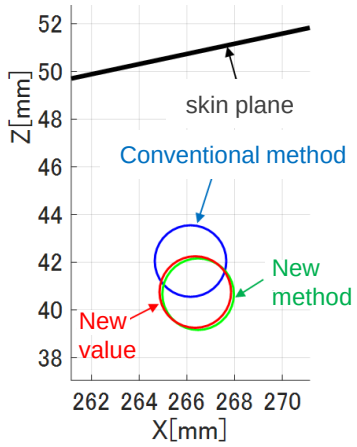
Case of attempted puncture (Long distance, skin plane: +10°)

Conventional method



New method





Related Works

[1]SAGAWA Koichi, FUJIMOTO Takuto, KOIDE Tatsuya, NAGAI Chikara, Collection of Essays on the Japan Society of Mechanical Engineers Vol.89, No.917, 2023

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