
International (China) Patent:

Glass detection system and method based on fusion of RGB-D sensor and ultrasonic sensor

Patent ID: 201811436184.0

Title: Glass detection system and method based on fusion of RGB-D sensor and ultrasonic sensor

Sovereignty:

A glass detection system based on sensor fusion. The system comprising one RGB-D sensor, two ultrasonic sensors, and a small processor. For the RGB-D sensor, two ultrasonic sensors are connected to the processor respectively. The two ultrasonic sensors are respectively fixed to the left and right sides of the RGB-D sensor. The RGB-D sensor collects scene information in real time and outputs color and depth images. The ultrasonic sensor detects the presence of obstacles in front of it through sound waves in real time and obtains the distance of the obstacle. The small processor is used to obtain the color, depth images and ultrasonic signals. The data is processed and the test results are output.

Summary:

The invention discloses a glass detection system and method based on a fusion scheme of an RGB-D sensor and an ultrasonic sensor. For the problem that the RGB-D sensor cannot obtain the depth information of the glass object correctly, this method uses one RGB-D sensor and two ultrasonic sensors to obtain data, and the designed detection algorithm can accurately detect the position and correctness of the glass. Depth information. This method is based on the sensor data fusion scheme. The device has low cost, high detection rate, good real-time performance, and can output the correct dense depth map in real time. It solves the problem that the RGB-D sensor cannot detect the depth of transparent glass and can be well satisfied for application requirements. To a certain extent, it has filled the technology deficiency in the field.

Patent type:

Invention Disclosure

Application (patent) number:

CN201811436184.0

Application date:

2018-11-28

Application announcement number:

CN109633661A

Public announcement day:

2019-04-16

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Classification number:

G01S15 / 93; G01S15 / 08

Main classification number:

G01S15 / 93

Country code:

33

Number of pages:

10

Agency:

Hangzhou Qiushi Patent Office Co., Ltd.

Agent:

Huang Huandi; Qiu Qiwan

一种基于 RGB-D 传感器与超声波传感器融合的玻璃检测系统和方法

主权项:

一种基于传感器融合的玻璃检测系统,所述系统包含一个 RGB-D 传感器,两个超声波传感器,一个小型处理器。RGB-D 传感器,两个超声波传感器分别与处理器相连,且两个超声波传感器分别固定于 RGB-D 传感器的左右两侧。RGB-D 传感器实时地采集场景信息,并输出彩色和深度图像,超声波传感器通过声波实时探测前方是否存在障碍物,并获得障碍物的距离,小型处理器对获取的彩色、深度图像和超声波传感器的数据进行处理,输出检测结果。

摘要:

本发明公开了一种基于 RGB-D 传感器与超声波传感器融合方案的玻璃检测系统和方法。针对 RGB-D 传感器对于玻璃物体的深度信息无法正确获取的问题,该方法利用一个 RGB-D 传感器和两个超声波传感器获取数据,通过设计的检测算法,就可以准确地检测出玻璃的位置和正确的深度信息。该方法基于传感器数据融合方案,设备价格低廉、检出率高、实时性好,并能实时输出正确的稠密深度图,解决了 RGB-D 传感器无法探测透明玻璃深度的问题,可以很好地满足应用需求,一定程度上填补了这一块的技术

专利类型:

发明公开

申请(专利)号:

CN201811436184.0

申请日:

2018-11-28

申请公布号:

CN109633661A

公开公告日:

2019-04-16

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分类号：

G01S15/93；G01S15/08

主分类号：

G01S15/93

国省代码：

33

页数：

10

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