**Research Paper Summary**

**Citation:** N. Eric and J. -W. Jang, "Kinect depth sensor for computer vision applications in autonomous vehicles," 2017 Ninth International Conference on Ubiquitous and Future Networks (ICUFN), 2017, pp. 531-535, doi: 10.1109/ICUFN.2017.7993842.

**Title:** Kinect Depth sensor for Computer Vision Applications in autonomous Vehicles

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**Link to paper:** [**https://github.com/albud187/ELG5163\_project/blob/main/literature%20review/finished\_reading/Kinect\_depth\_sensor\_for\_computer\_vision\_applications\_in\_autonomous\_vehicles.pdf**](https://github.com/albud187/ELG5163_project/blob/main/literature%20review/finished_reading/Kinect_depth_sensor_for_computer_vision_applications_in_autonomous_vehicles.pdf)

Section 1 - Overall Idea

* Detect the presence of objects and measure how far they are using Kinect depth sensor

Section 2 - Methodology

* Kinect camera was released by Microsoft Corporation to interact with game consoles at the beginning of 2010. Kinect v2 sensor is used in many different fields of technology as it can sense depth, capture color images, emit infrared rays, and input audio.
* As Kinect v2 uses Time-of-Flight system, it modulates the camera light source with a square wave by using phase detection to measure the time the light takes to travel from the light source to the object and back to the sensor. The depth is then calculated based on the speed of light in air.
* objects in its field of view are identified with a red rectangle using image processing functions and the depth sensor processes the distance measurement system from a nearest pixel of each object.

Section 3 - Applications

* low-cost range sensor along with its higher depth fidelity and attractive alternative in computer vision.
* Kinect can be mounted on unmanned vehicles like a vision sensor for obstacle avoidance application or other applications

Section 4 - Future Development

* Authors have tested the capacity of Kinect v2 in order to find out if it could be an alternative to laser scanners for 3D measurements.
* Are we able to apply the same computer vision technique to vehicle driving?

Section 5 - Questions

1. What program is required to run Kinect depth sensor?

Section 6 - Anything Else

* N/A.