

Kennesaw State University

DigitalCommons@Kennesaw State University

Symposium of Student Scholars

26th Annual Symposium of Student Scholars -
2022

Analysis of the Internal Delays of Various Wireless Technologies for Autonomous Vehicle Applications

Luanne Seaman

Follow this and additional works at: <https://digitalcommons.kennesaw.edu/undergradsymposiumksu>



Part of the [Digital Communications and Networking Commons](#)

Seaman, Luanne, "Analysis of the Internal Delays of Various Wireless Technologies for Autonomous Vehicle Applications" (2022). *Symposium of Student Scholars*. 51.

<https://digitalcommons.kennesaw.edu/undergradsymposiumksu/spring2022/presentations/51>

This Oral Presentation (15-min time slots) is brought to you for free and open access by the Office of Undergraduate Research at DigitalCommons@Kennesaw State University. It has been accepted for inclusion in Symposium of Student Scholars by an authorized administrator of DigitalCommons@Kennesaw State University. For more information, please contact digitalcommons@kennesaw.edu.

Analysis of the Internal Delays of Various Wireless Technologies for Autonomous Vehicle Applications

Poster Presentation Undergraduate Student: Luanne Seaman

Research Mentor: Dr. Billy Kihei

Autonomous vehicles use VANETs (vehicular ad-hoc networks) to communicate with the world around them. Despite the simple premise, VANETs rely on a variety of wireless technologies depending on range, internal delay, urgency of information, and other factors. Therefore, VANET algorithms will need to weigh these elements accordingly. Through this research, I hope to contribute reliable measurements of internal delay to reduce the algorithms' complexity. To calculate internal delay, I connected two Arduinos to a STM32 Nucleo Board. One Arduino is the transmitter, and the other is the receiver. Different wireless modules like Bluetooth and Zigbee were connected to the Arduinos. Then, the Nucleo Board runs a program to calculate the delay between transmission and reception.

Keywords: VANET, autonomous vehicles, wireless, wireless delay, STM32, Arduino