Graduate Research Seminar:
SCADA Testbed Implementation, Attacks, and Security Solutions

Speaker: Tapan Soni, John Stranahan, and Jacob Carpenter.
Affiliation: Rowan University
Date: April 3rd, 2019 (Wednesday)
Time: 11:00am-12:00pm
Venue: Computer Science Room 330A Robinson Hall

Abstract:
Supervisory Control and Data Acquisition (SCADA) control systems have been in use for decades. They provide remote management and monitoring capabilities for Industrial Control Systems (ICS) such as power plants, trains, water treatment plants, and dams. In recent years, SCADA systems have been the target of malicious attackers. The Modbus TCP/IP protocol, which is the standard communication protocol used by many SCADA systems for network communication, is unencrypted and therefore it is insecure by design. In this research, a cost-effective design and implementation of a custom SCADA testbed is proposed to assess prevalent vulnerabilities and exploits in real-world Industrial Control Systems. A solution is then proposed to prevent these types of vulnerabilities from being exploited on real world systems by implementing an IPSec VPN tunnel.

Brief Bio:
Tapan Soni is a graduate student with thesis in the CS department focusing in cyber security. He is a Teaching Assistant (TA) for Dr. Heydari and he is teaching 2 of the 4 Cyber Security Fundamentals labs. Tapan graduated with a BS in CS from Rowan University in December 2018. His interests include computer forensics, cryptography, network security, and penetration testing tools.

John Stranahan is a graduate student with thesis in the CS department with research focusing in cyber security. He is a TA for Dr. Heydari and is is teaching the other two sections of the Cyber Security Fundamentals lab. He graduated with a BS in CS from Rowan University in December 2018. His interests include IOT security, network security and mobile security.

Jacob Carpenter is a graduate student in the CS department. He graduated with a BS in CS from Rowan University in December 2018. He currently works at Lockheed Martin. His interests include network security, virtualization technologies, penetration testing and ethical hacking.