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(57) Abstract :

Title - Design and implementation of an IoT based Monitoring system for inland vessels using multiple sensor networks Abstract Securing devices is primarily about ensuring the safety and integrity of program code. The topic of code security is beyond the scope of this article, let's focus on integrity. The Cryptographic signing ensures that once signed it has not been tampered with and is safe for the device. It can be implemented at the application and firmware levels, and even on devices with a monolithic firmware image. All critical devices, be they sensors, controllers, or whatever, must be configured to run only signed code. After the code is enabled, the devices must also be protected in subsequent stages. This is where host-based security comes in, which provides hardening, access control to system resources and files, connection control, sandboxing, intrusion protection, behavior-based and reputation-based protection. Blocking, logging and alerting various IoT operating systems are added to this long list of host security features. Recently, many host-based security tools have been adapted to IoT and are now well-developed and debugged, do not require access to the cloud and carefully utilize the computing resources of IoT devices

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Complete Specification

Description:Design and implementation of an IoT based Monitoring system for inland vessels using multiple sensor networks

Background of the problem

Most IoT devices are "closed systems". After devices leave the factory, customers cannot add security software. Such tampering will void the warranty and is often impossible. For this reason, in order for IoT devices to be secure by design, security features must be built in from the start. For most of the information security inc this "security in-house", that is, built-in when a device is manufactured at the factory, is a new way of providing security, which also applies to classic security technc such as encryption, authentication, integrity testing, intrusion prevention and secure upgrade capabilities. Given the close relationship between hardware and softw the IoT model, it is sometimes easier to create "outer" security layers using security software hardware enhancements. It's great that many chip manufacturers hav already built security features into their hardware. But the hardware layer is the first layer required for comprehensive communication and device security. End-to-t security requires integration of key management, host-based security, OTA infrastructure, and security intelligence. Missing even one of the cornerstones in the fou of security leaves attackers wide open to operate. No one wants and often cannot send their employees to visit every IoT device in person to update firmware, esp for trucks distributed over hundreds of kilometers or a network of control sensors. For this reason, devices must be capable of being managed over the air (OTA) be they reach customers.

As the Industrial Internet and IoT bring networked intelligence to the physical things around us, we need to be mindful of their security. Our lives depend on the pla trains and cars that carry us, the healthcare and civil infrastructure that allow us to live and work. It is not difficult to imagine how the illegal handling of traffic lights medical equipment or countless other devices can lead to dire consequences. It's also clear that ordinary citizens and IoT buyers don't want strangers hacking into.

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