# Securing Robot Communications using MULTOS for IoT

## “Mμ-Bot” Secured by MULTOS tm

### Robots on the Rise

The global robotics technology market size was estimated at USD 72.17 billion in 2022 and is expected to surpass around USD 283.19 billion by 2032. Worldwide, countries are increasingly investing in robotics to enhance productivity and efficiency across various industries. As we rely more on automation and robotic technology there is a growing need to ensure the technology is safe for use and any associated control and data is protected from malicious interference. To demonstrate the application of secure micro-controllers to protect robots, the MULTOS team created Mμ-Bot – incorporating enhanced **Integrity, Authentication and Confidentiality**.

*A Raspberry Pi board with MULTOS IoT USB stick, the MULTOS device securing the communication*

MULTOS is a secure chip platform that combines state-of-the-art hardware with a proven multi-function, multi-application secure software operating system. With built-in asymmetric cryptography for device management, the MULTOS Trust Anchor offers a ready-made secure environment for IoT. It has been at the heart of the secure token industry for 25 years, with over 2.5 billion secure MULTOS smartcards and devices shipped. It is industry renowned as the premier standard of security and quality, and has obtained the highest band of security approval, the Common Criteria EAL7 certification.

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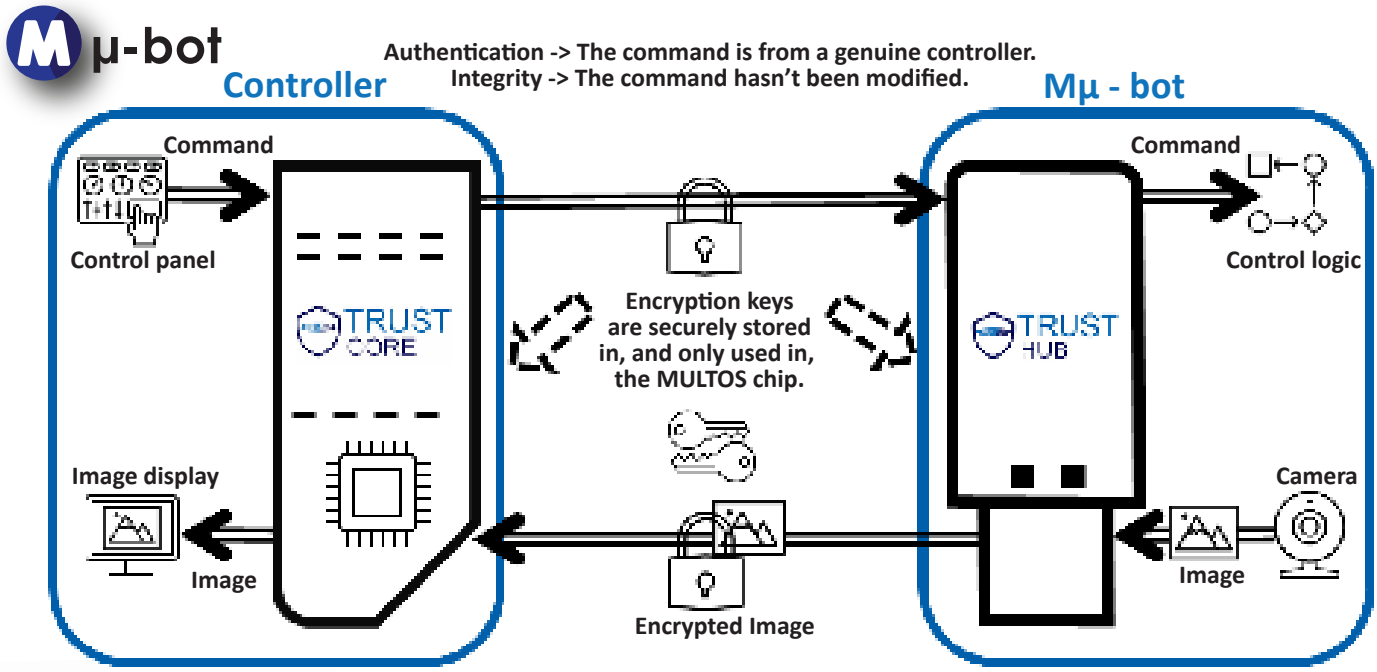
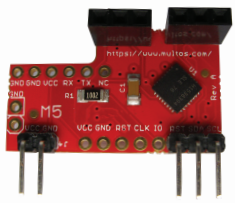
In the Mμ-Bot “demo” below, the security added by MULTOS ensures that for data sent to Mμ-Bot the commands to the robot are genuine commands and have not been tampered with, and for data received from Mμ-Bot the images are genuine, have not been tampered with and are protected from unauthorised viewing. Comprehensive security for a safe and trusted robotic system.




**Authentication -> The image is from a genuine robot.**
**Confidentiality -> Nobody else can intercept and view/modify the images.**



## MULTOS Trust Core and Trust Hub Features

This demo uses a standalone MULTOS M5-P22 single chip microcontroller containing UART and IIC connectivity, timers and GPIO, a library of functions supporting 4K RSA, 521-bit ECC, AES and DES, RNG, and secure key, code and data storage.

## Why Choose MULTOS?

**Reduced Time to Market:** MULTOS is a complete security framework reducing the effort required for prototype development for designers. It supports popular prototyping platforms such as Raspberry Pi and Arduino environments.

**Easy to Implement:** The MULTOS environment uses C coding to quickly write applications. Training and support is widely available and **a Development Kit** is available for purchase. Libraries are available for using MULTOS chips with Raspberry Pi and Arduino.

**Simplified Provisioning:** MULTOS enables remote and secure provisioning of data, and can be implemented over insecure communication channels.

**Security Assured:** MULTOS has been at the heart of the secure token industry for more than 25 years with over 2.5 billion smartcards and other devices shipped to date. Industry renowned as the premier standard of security and quality, it is the only such platform that has obtained the highest band of security approval, the **Common Criteria EAL7** certification.



www.multos.com