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# Breaking Barriers: Arduino Core API advancements in Zephyr, Linux and IoT Systems

*Wednesday, 15 November 2023 17:40 (35 minutes)*

This presentation will provide an overview of the Arduino Core API and Zephyr RTOS, and explain how their integration can simplify and streamline IoT development. We will cover the advantages of using the Arduino programming model with Zephyr, and how it can benefit developers by providing access to a wide range of pre-built functions and modules. The presentation will also cover the key features of the Arduino Core API for Zephyr RTOS, including digital and analog input/output, serial communication, and peripheral interfaces. We will discuss how these features can be used to create real-time applications with reduced development time and complexity.

There is still scope to achieve an even more seamless experience for beginners, by integrating it with Platform IO or Arduino IDE. However this approach of how we can tie zephyr, the Arduino core module and platform IO needs to be discussed further, as to what the ideal way to do this would be, and if there are other better platforms to target instead.

We will also explore possibilities as to how one can leverage a Linux Host machine as a CI tool to enable development and testing of an Arduino application code with the help of native\_posix target. This can help Arduino Code projects to test and validate their codes faster and in a simpler fashion. No clear way to do this exists today and this too is a topic that could garner some attention.

There is also room for improving the Arduino Core API support to include the SPI, CAN and USB implementations. There's also an opportunity to leverage the excellent BLE stack in zephyr in an Arduino friendly way using something like the ArduinoBLE compatible calls. The talk will cover a few approaches to tackling these challenges and hope to get better suggestions or reviews from the community.

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