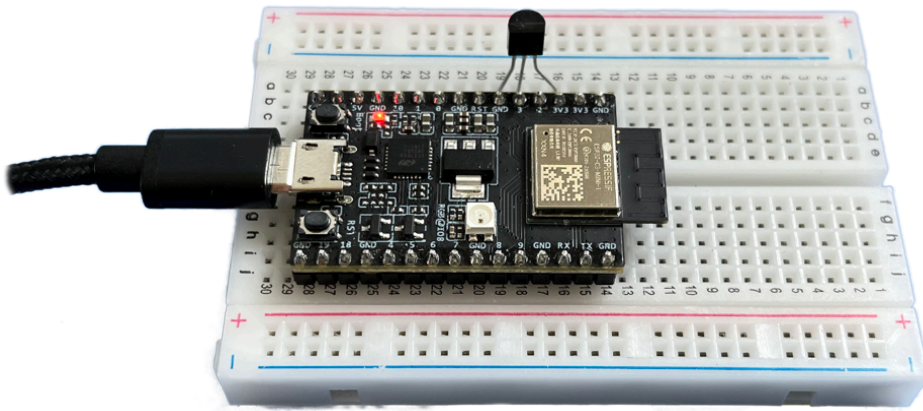


FEARLESS EMBEDDED RUST

Martin Mosler / Zühlke Engineering AG

Embedded Open Source Summit 2023 (Prague)

ESP32-C3 DEVKITM-1



- Well supported
- RISC-V
- Wifi
- Inexpensive and available
- 4 MB flash

CREATE, DEPLOY AND RUN HELLO WORLD APP

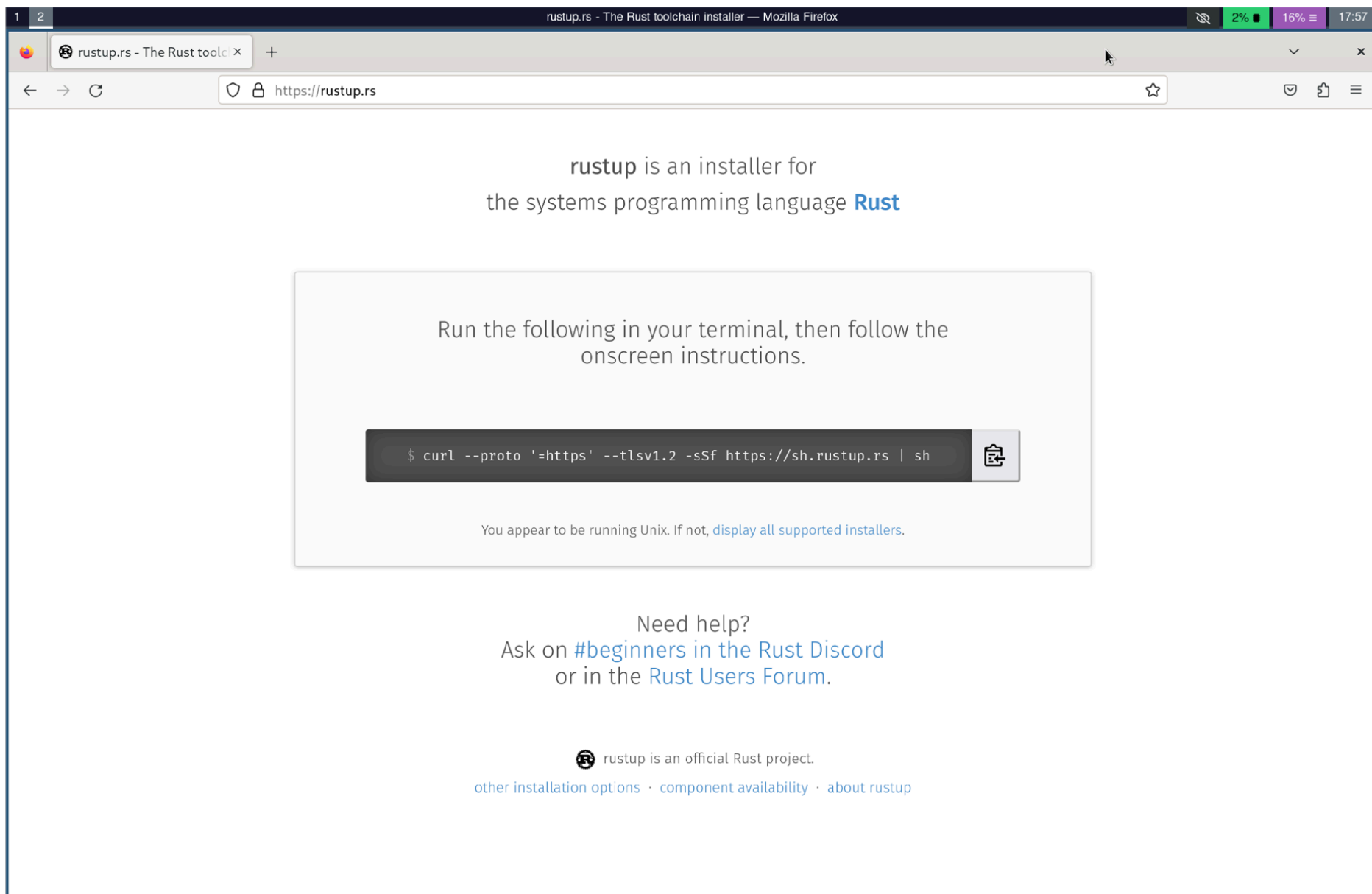
... FROM THE ESP IDF TEMPLATE

```
# Create a hello world project for the ESP32C3
cargo generate --git https://github.com/esp-rs/esp-idf-template
cargo

# Update .cargo/config.toml to use espflash v1.7
vi .cargo/config.toml

# Compile, link, flash and run the hello world project
cargo run --release
```

SETTING UP THE TOOLSUITE



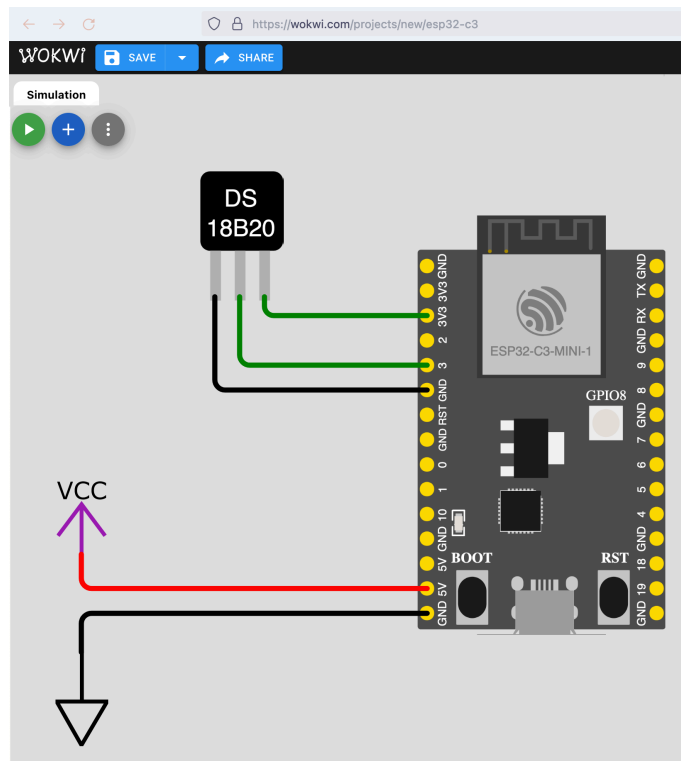
INSTALL ESP32C3 SPECIFIC PARTS

```
# Install dependencies for cross compilation tools
sudo dnf install openssl-devel rust-libudev-devel python3-pip
clang

# Make the udev system aware of the USB serial port
# and make it accessible to our user
echo "SUBSYSTEMS==\"usb\", ATTRS{idVendor}==\"10c4\",
    ATTRS{idProduct}==\"ea60\", MODE=\"0660\", GROUP=\"user\""
| sudo tee /etc/udev/rules.d/99-esp-rust-board.rules
> /dev/null

# Install cargo plugins for cross development
cargo install espflash ldproxy cargo-generate
```

THE TEMPERATURE SENSOR



Demo time

- Create, serialize and output **temperature measurement**
- Go to deep sleep for some time to **save energy**
- Connect to a wifi hotspot and **send measurement**

STEPS FROM HERE

- Battery monitoring
- Embedded framework
- Storage
- OTA update
- UI

RESOURCES

- Get the code from GitHub: [zerom0/fearless-embedded-rust](https://github.com/zerom0/fearless-embedded-rust)
- Get in contact on LinkedIn:
<https://www.linkedin.com/in/martin-mosler/>