Devcontainers and Embedded software development

Try-out STM32 devcontainer

Required linux programs

- arm gcc (arm-none-eabi)
- gdb
- make (provided in `build-essential`)
- openocd
- usbutils (provides `lsusb`)

Blinky on FreeRTOS

Simple example CubeMX generated project can be found at github in the repo

nothing to specifically focus on. LED blinking done in `Src/freertos.c`

Flashing with OpenOCD: example in `flash.sh`

Integration with VSCode

- Create VSCode build task
  - `.vscode/tasks.json` with entry for shell executing `make`
- Maybe a flash task as well
- Add task explorer plugin to devcontainer
- Add debug entry for vscode (see next slide)

OpenOCD debugging in VSCode

- Add cortex-debug plugin to devcontainer
- Let VSCode create a `launch.json` and let it add a cortex-debug entry
- Set the servertype to `openocd`
- For automatic building add a `preLaunchTask` and set it to the build task name
- For automatic programming add an array called `postLaunchCommands` with `load` and `monitor resume`

- add the OpenOCD scripts for the debugger and chip: add

```
"configFiles": [
    "interface/stlink.cfg",
    "target/stm32f1x.cfg"
]
```

- At last: force cortex-debug to use gdb-multiarch with `"gdbPath": "gdb-multiarch"`

Set your breakpoints and pause and single step away!!

For a full example check github