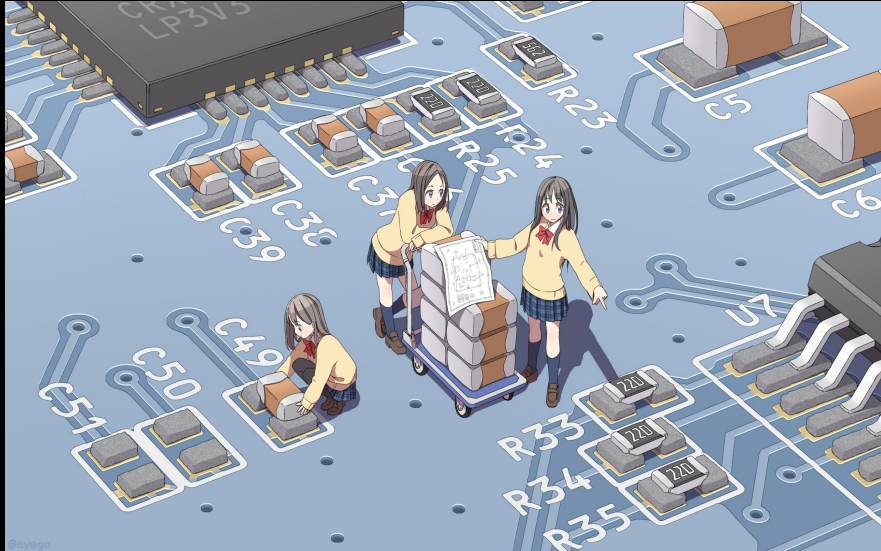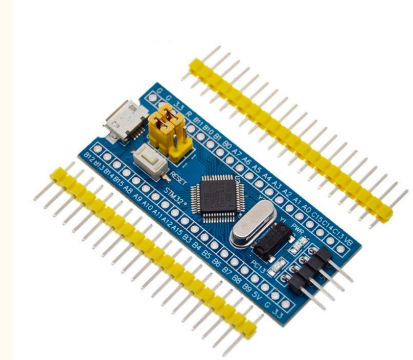# STM32-bootloader



**Mentor:** Litvinov Vasiliy
**Team members:**
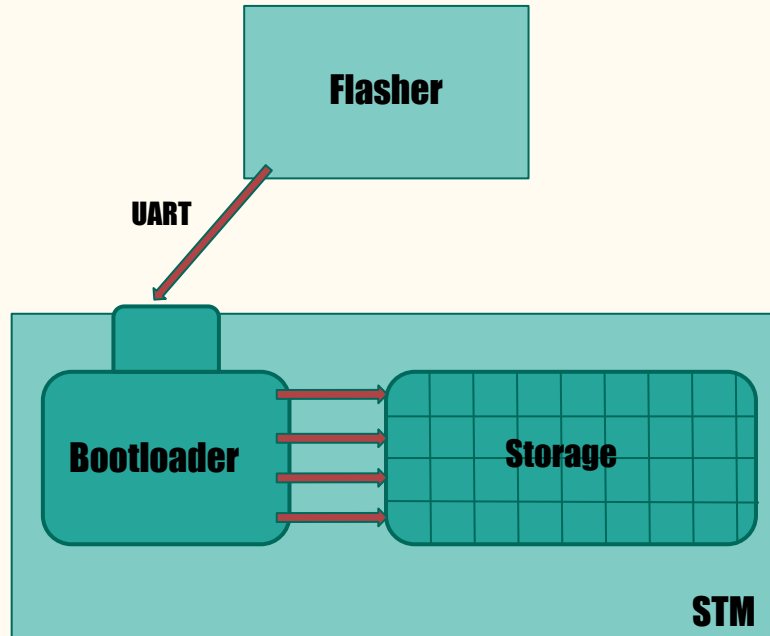Patrushev Boris
Tarasov Artem
Vasilev Pavel

# What is STM32 that everyone is talking about?

- Processor Core- 32-bit ARM
- Static RAM,
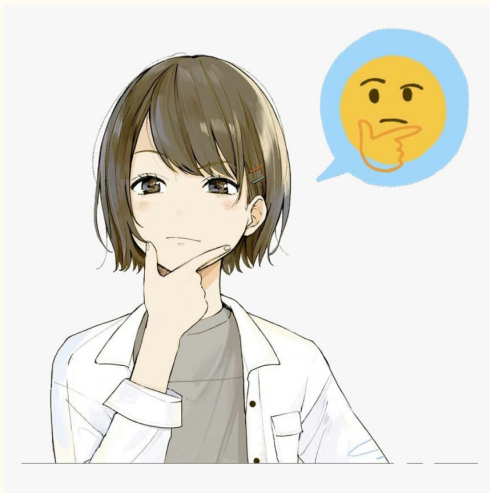- Flash memory,
- Debugging interface
- Various peripherals

# What is bootloader?

- This is the program, which allows us to upload new program on the device

# Why do we need a custom bootloader?

1. Security via encryption and prevention of unauthorized reading/writing
2. Allows to customize memory layout
3. Allows end users of devices to get firmware updates very easily

# Goals of the project

- Bootloader with firmware encryption
- Flasher
- Support for different versions of STM32
- Developer tools

# Encryption (AES)

- **A**dvanced **E**ncryption **S**tandard
- Symmetric block algorithm
- Encryption and decryption of 128-bit blocks of data
- Secure (approved by US government)
- Very efficient
- Easy to implement

# Flasher

- C#
- End user can choose a file with a new version of the program and then send it to the STM32
- Program will be able to upload the bootloader to the device (for the updates to devices that don't have it yet)

# Future plans

- Encryption/checksums(integrity)
- Flasher and GUI (C #)
- Modifier
- Support of a variety of platforms

Thank you for your attention!