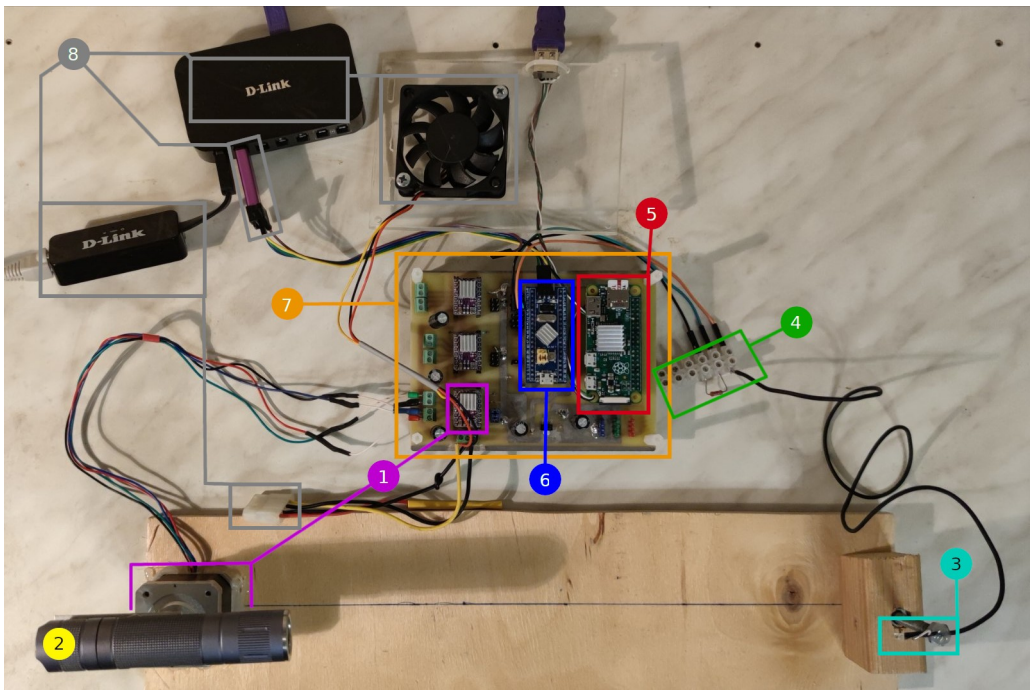
Directory structure:

inc/main.hpp	Header file for the software part of the project
src/main.cpp	Source file for the software part of the project.
plot/main.py	Python script to visualize data
plot/data/background.csv	Generated data with flash light turned off
plot/data/data.csv	Generated data with flash light turned on
CmakeLists.txt	CMake script, generated during project customization. Generated in software/example.
radpattern.json	Configuration file used for this experimental setup.
description.pdf	This file.

Software part consist of:
1. JSON configuration file, written by used and used to describe which peripherals should be used by MCU.
2. Firmware for STM32F103 MCU. Firmware is generated by the project using JSON configuration file (using radpattern.json).
3. C++ library generated by the project using JSON configuration file. This library should be installed in Linux operational system running on Raspberry Pi. .
4. C++ program linked with generated C++ library. This program initiates connection to I2C bus and firmware using several classes provide by the project. ADCDev and StepMotorDev classes are used to control ADC peripheral and DRV8225 stepper motor driver.
5. Python scripts to draw radiation pattern.



Hardware part consist of:
1. Stepper motor Nema17 (SM42HT47) and DRV8825 stepper motor driver.

2. A source of light (bicycle flashlight) which is attached to the motor axis.
3. Photo-transistor (HPTC3C-44J).
4. Terminal block used to connect photo-transistor, load resistor (10kOhm). Terminal block allows to change load resistor quickly to adjust photo-transistor for the most kinds of light sources.
5. Microcomputer (Raspberry Pi Zero v1.3).
6. Blue Pill module with STM32F103C8T6 MCU.
7. Connection PCB board used for interconnection purposes and 3.3V DC-DC converter. This PCB was made for project testing purposes, therefore there are three DRV8825 installed. If required this board allows to connect up to three stepper motor drivers, in our case single motor is enough.
8. Other devices like Power supply (not shown), USB hub, USB Ethernet adapter, MCU programmer and active cooling system.