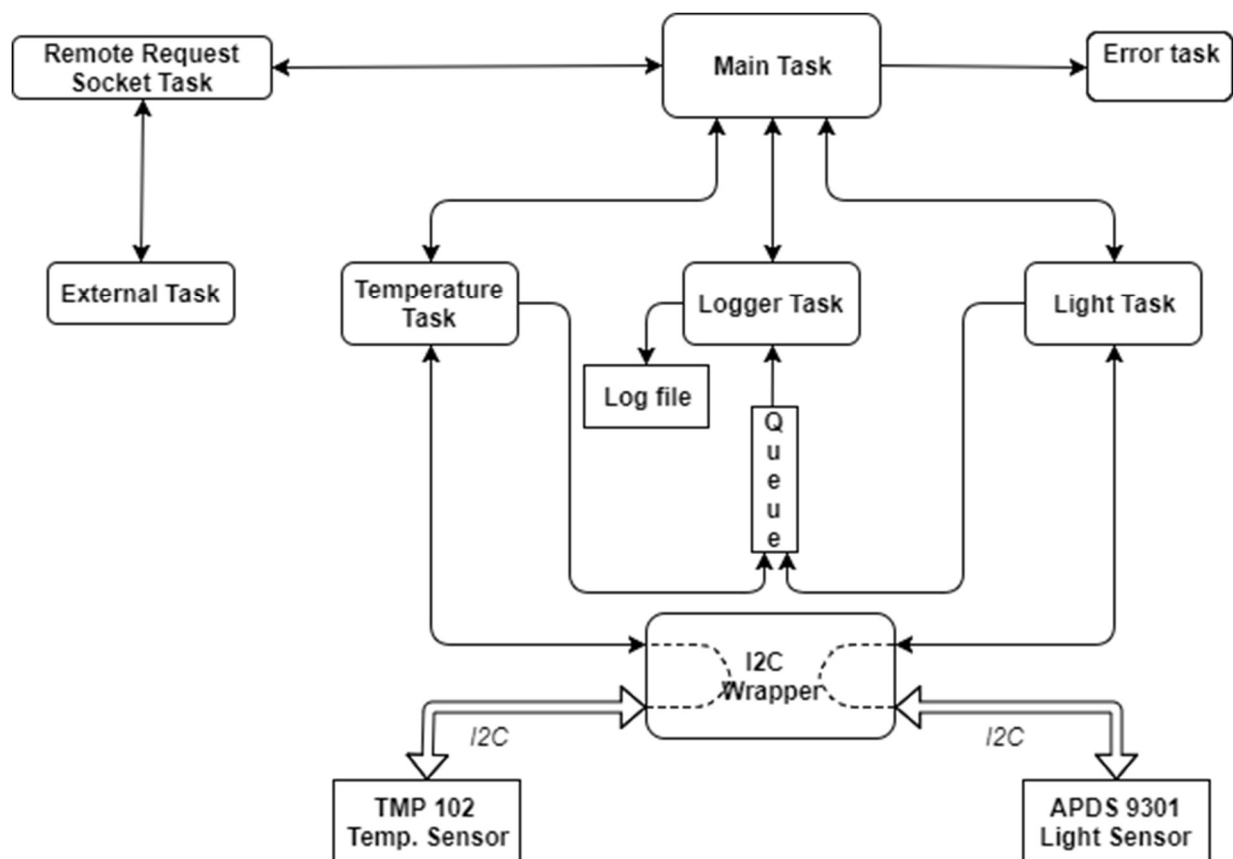


Advanced Practical Embedded Software Design

Project 1 - Software Architecture Review

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Software Architecture

Main Task

- The main task is responsible for creating all children tasks.
- The main task needs to ensure that all the children tasks are up and running. The main task receives status updates from each task after every fixed interval of time.

Temperature Task

- The temperature task is responsible for interacting with TMP102 Temperature sensor through the I2C interface.
- The temperature task will provide the following functions:
 1. temp_init()
 2. get_temp()

Light Task

- The light task is responsible for interacting with APDS-9301 Light sensor through the I2C interface.
- The temperature task will provide the following functions:
 1. light_init()
 2. get_lumen()

Logger Task

- The logger task logs the data received from the other tasks.
- This is implemented using a message queue which takes the data from different tasks and the logger task takes the data from the queue and logs it in a file.

Socket Task

- The socket task is responsible to take requests from an external process/task and forward it to the sensor tasks to get the sensor data.

I2C Wrapper

- I2C Wrapper is a Kernel Module which provides the I2C bus for communication between the tasks and the sensors.

Error Task

- The error task logs the error condition to the user and indicates by switching on the USR LED.