

EES4100: Project Part 1

The project task consists of a bridge application as shown in figure 1. The application will simultaneously (in separate threads) operate as a Modbus client and a BACnet server. Such applications are commonly required in building automation systems when integrating various pieces of hardware. Both Modbus and BACnet are industry standard protocols, commonly found in HVAC equipment, lighting controllers, energy meters and many other applications.

Part 1 of the project consists of completing the Modbus client thread. You are required to connect to a modbus server using Modbus/IP, connecting to a Modbus server located at IP address 140.159.153.159 operating on port 502 (MODBUS_TCP_DEFAULT_PORT).

The server is currently configured with three registers starting at address 0. These are loaded with a random integer, once per second.

In order to implement the Modbus component of your application, you may use the libmodbus functions: `modbus_new_tcp()`, `modbus_connect()`, `modbus_read_registers()`, `modbus_close()` and `modbus_free()`.

As well as functionality, you will be assessed on build system, documentation, licensing, coding style, and version control. Ensure that you commit your project to GitHub (or another provider) regularly, so that a complete history of your application is available. Ensure that all commits are marked with a meaningful comment. You are expected to use the autotools build system. Ensure that you provide documentation covering how to build your application, how to use your application, and most importantly, the purpose of your application. This should be provided in the README file. It is also important that you provide documentation throughout the source code of your application using C comments.

You can check that your application is working up to this stage by confirming that you are able to read 3 registers and obtain data that changes each second.

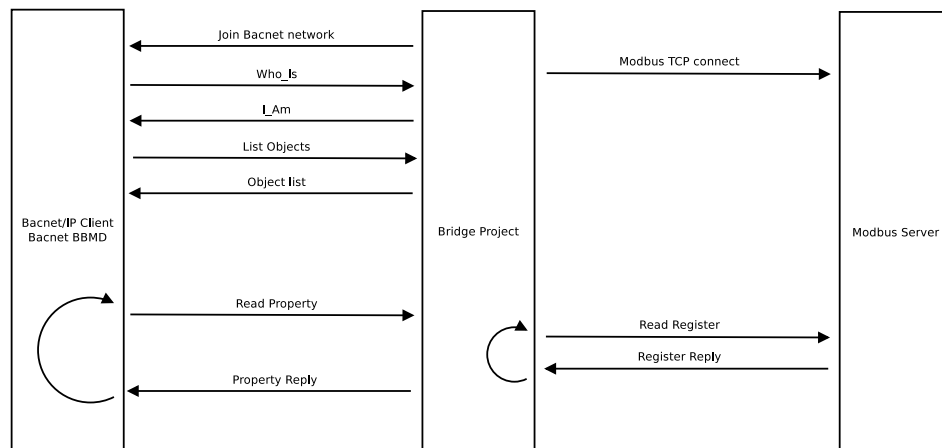


Figure 1: Project Architecture