|  |
| --- |
| Design  GROUP 6 |

Class: I02

Date: November 2021

Version: 1.4

Student Number: 4538528

|  |
| --- |
|  |
|  |

**Vasile Mihai Glodici**

**https://git.fhict.nl/I485522/ieo-group-6.git**



**Revision Table**

|  |  |
| --- | --- |
| **Version**  **1** | **Created layout and design** |
| **Version 1.1** | **Added text in some paragraphs** |
| **Version 1.2** | **Integrated feedback** |
| **Version 1.3** | **.**  **Added Phillips Hue Light to Network Diagram**  **Added Test table**  **Changed Agreements** |
| **Version 1.4** | **Made Test table a separate file in the git repository and deleted from Design document** |

**T****able of contents**

• Agreements – made with the tutor ……………………………………...4

• Requirements………………………………………………………………4

• System setup…………………………………………………………….5-6

• Network configuration…………………………………………………….7

• GUI………………………………………………………………………….8

• Website wireframe………………………………………...………………8

**• Agreements – made with the tutor**

Since I will be working alone, the teacher and I agreed that there will be some aspects of the project that I can skip, for example, I don’t need to make a new website, using the old one from EDO is good enough.

Another agreement is that I don’t need to fill in the agenda and minutes on each meeting.

ERD and network configuration will be shared between my group (6) and 8.

Router doesn’t support the same subnet in both LAN and WAN so I will have a different configuration from the rest of the class.

**• Requirements**

• Local Network Advertisement blocking via PiHole application

•Class is split into groups or “rooms” of 3 students

•Groups should be able to ping/share files with each other

•Working local and external network, protected from unauthorized access

•Local webserver hosting that will be accessible by others in the network

•Only one internet connection and it must be shared by all

apartments.

**• System setup**

A router is used as a gateway to connect to the rest of the network, but also to be able to route the packets through another shared gateway that connects everyone to the internet. This model provides many useful tools, like DHCP configuration, NAT protocol (can’t be used because the rest of the group routers don’t support it). The hardware should also be enough to support a few devices in the local area network without any bottlenecks.

**TP-LINK Router TL-WR841N V14:**

* WIRELESS
* Standards -Wi-Fi 4
* IEEE 802.11n/b/g 2.4 GHz
* WiFi Speeds -N300
* 2.4 GHz: 300 Mbps (802.11n)
* WiFi Range -2 Bedroom Houses2× Fixed Antennas
* WiFi Capacity -Legacy
* Working Modes -Router Mode
* Access Point Mode
* Range Extender Mode
* WISP Mode
* HARDWARE
* Processor -Single-Core CPU
* Ethernet Ports 1× 10/100 Mbps WAN Port
* 4× 10/100 Mbps LAN Ports
* Buttons -Reset Button
* Power 9 V ⎓ 0.6 A
* SECURITY
* WiFi Encryption -WEP
* WPA
* WPA2
* WPA/WPA2-Enterprise (802.1x)
* Network Security -SPI Firewall
* Guest Network -1× 2.4 GHz Guest Network

The RaspberryPi is a mini computer that is used for hosting a local webserver(Apache Service), blocking advertisements with the PiHole application, and as a custom DNS server. It runs a Linux distribution, making the setup of all features more easily doable through the terminal.

**RaspberryPi 4**

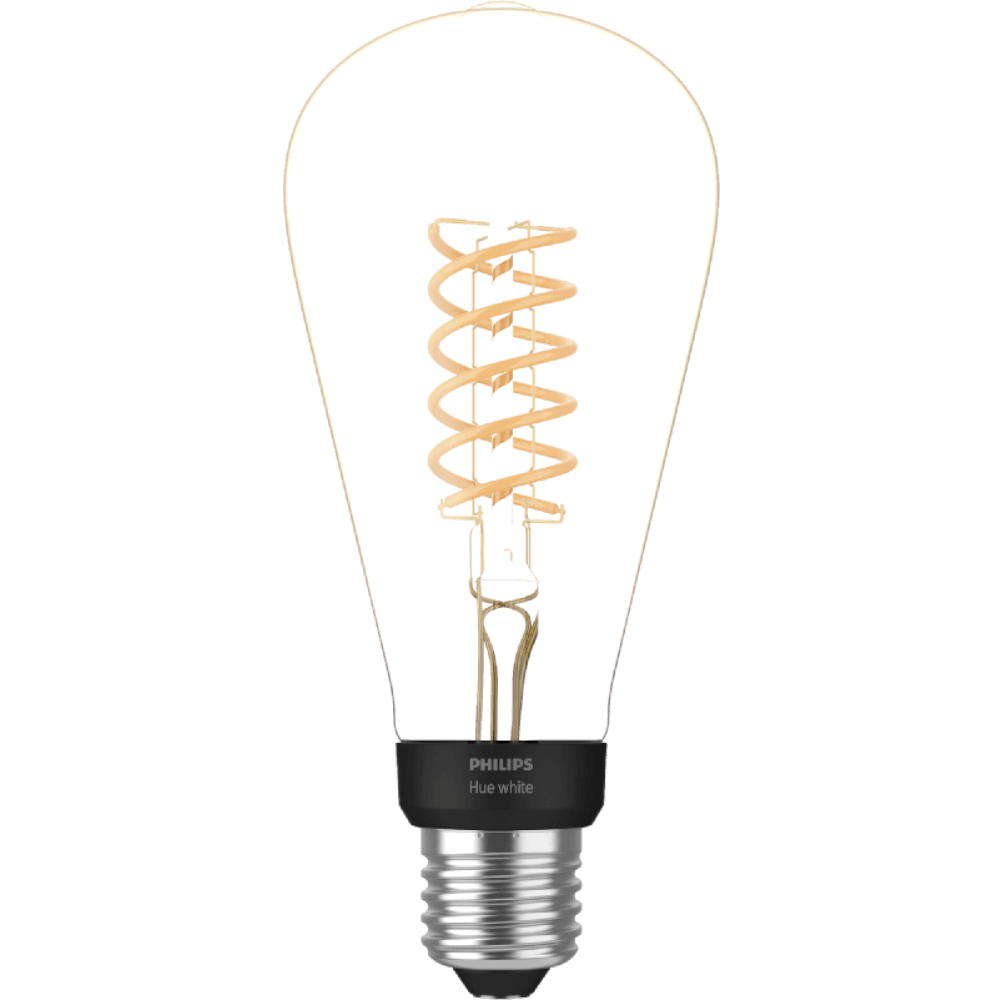
* Broadcom BCM2711, Quad core Cortex-A72 (ARM v8) 64-bit SoC @ 1.5GHz
* 2GB, 4GB or 8GB LPDDR4-3200 SDRAM (depending on model)
* 2.4 GHz and 5.0 GHz IEEE 802.11ac wireless, Bluetooth 5.0, BLE
* Gigabit Ethernet
* 2 USB 3.0 ports; 2 USB 2.0 ports.
* Raspberry Pi standard 40 pin GPIO header (fully backwards compatible with previous boards)
* 2 × micro-HDMI ports (up to 4kp60 supported)
* 2-lane MIPI DSI display port
* 2-lane MIPI CSI camera port
* 4-pole stereo audio and composite video port
* H.265 (4kp60 decode), H264 (1080p60 decode, 1080p30 encode)
* OpenGL ES 3.1, Vulkan 1.0
* Micro-SD card slot for loading operating system and data storage
* 5V DC via USB-C connector (minimum 3A\*)
* 5V DC via GPIO header (minimum 3A\*)
* Power over Ethernet (PoE) enabled (requires separate PoE HAT)
* Operating temperature: 0 – 50 degrees C ambient

**• Network configuration**

This is the local area network diagram; every packet will use the router as a gateway. The RaspberryPi serves as the webserver but also as an Adblocker and DNS server, while Mihai’s Laptop is just another user.

Internet connection will be provided by making a route to another shared gateway with the whole class.

Sharing files/pinging in the network is achieved by everyone using the same network IP, with the only difference being our local bytes. The Ip ranges have been decided in coordination with the rest of the groups.

A picture containing text

Description automatically generated

**Phillips Hue Lights**

DHCP range: 192.168.0.60-69/24

DHCP range: 192.168.0.60-69/24

192.168.0.100/24

192.168.0.200/24

**• GUI**

Graphical user interface, website

Description automatically generated

**• Website wireframe**

•Clickable Wireframe File is attached separately: 

Wanted to screenshot every page, but I am having issues downloading Adobe XD