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MULTIPLATFORM SOFTWARE MODULE FOR IMPLEMENTING THE STANDARD EASY MESH OF WI-FI NETWORK

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The modern wireless network consists of Wi-Fi router, connected to the Internet provider with the wire which creates Wi-Fi network with quite an insignificant coverage area and with a small number of clients who can physically be located in the coverage area. The solutions which have been researched have got a substantive disadvantage, particularly, the problem of equipment compatibility from different providers. Consequently, the development of multiplatform software module for implementing the standard Easy Mesh of the Wi-Fi network has been offered [1].

Software module for implementing the standard Easy Mesh of the Wi-Fi network is a complex of software solutions and algorithms, and its implementation without a professional team is impossible. The project with an open-source code *prplMesh* has been found. The project is being supported by the association *prplFoundation* [2].

The algorithm of setting the Wi-Fi network with software *beerocks_cli* has been developed; the implementation of the algorithm using the language C++ and *Ambiorix* interface development for creating a wrapper over the library *Ambiorix* have been performed. The last one mentioned gives the opportunity of data model registration on Ubus and management from the source code *prplMesh* as well as using Ubus-cli.

The order of commands for the start and settings of the software module *pprplMesh* has been defined; both setting and testing of the software module have been done. The testing has shown that Mesh Wi-Fi network has been created and it works.

The process of looking for the equipment which is compatible with the minimal requirements of the software module for implementing the standard Easy Mesh Wi-Fi network.

The features of the router NETGEAR RAX 40 have been defined and comparing with the minimal requirements has been performed. These features of the router meet the requirements and the router has been used in benchmark testing of the software

module. The ways of creating operating system images (OS) for the chosen router and the ways of creating the software module *prplMesh*, operating system updating and software module *prplMesh* have been researched.

For Wi-Fi routers OpenWrt is an operating system with an open-source code, which is compatible with a great number of routers from different suppliers, network cards and ports [3].

The software and hardware complex which is the basis for building the benchmark for testing the software module *prplMesh* for wireless Mesh Wi-Fi network has been chosen. The process of developing and updating the operating system image for routers and setting of the software module *prplMesh* has been carried out.

Two Wi-Fi clients have been connected successfully to two routers which create Mesh Wi-Fi networks, and testing by means of sending ICMP packages between the Wi-Fi clients has been done. There are ICMP inquiries and ICMP reviews on both clients which means that the efficiency of wireless Mesh of Wi-fi network is full and complete.

Software module prplMesh is on the stage of active development. The work on eliminating all existing deficiencies and problems are being carried out, but even now, using setting instructions, it is possible to create the Wi-Fi network of the appropriate size that will work in test mode. In Kyiv department of the international company *Inango LLC* there is a benchmark which is for testing software *prplMesh. Essensium/Mind* company (Belgium) has a benchmark with *prplMesh* as well as certified equipment to certify software module.

References:

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[2] Retrieved from https://prplfoundation.org/prplmesh/
[3] Retrieved from https://openwrt.org/