SUB-PROIECT 2

Experimental development of emerging technologies in the field of mobile communications at the level of online social networks and the study of their impact at the user level of ”Integrated Mobile Social Networks”

More and more people are choosing to accessorize, wearing smart watches, which in addition to the basic functionalities of an electronic watch, come to include advanced functionalities of sensory data collection, analysis, or even decision making, when an extreme situation has been identified, and something unpleasant is about to happen. Besides the fact that they have become extremely intelligent and their functionalities are more and more offering, given the extremely high competition on the market of smart watch devices, their prices have become affordable for everyone. It means that a smart device can start from prices like 30-50 RON and can reach prices of approximate 5000 RON. The differences being made clearly by the brand, design, quality of materials, and more recently, by the functionalities it includes, the quality of the operating system, connectivity and autonomy.

Regarding the involvement of information in the area of smart devices that are becoming more common in current activities, both domestic and public, generally known as the umbrella term of IoT (Internet-of-Things), in the first year of the project activity began by conducting an extensive study on the literature, which included over 200 bibliographic sources, being a synthesis used by specialists involved in this subproject for calibration and development of other studies in this stage. The study continued by identifying potential users (stakeholders) at the local level of technologies and mobile applications in online social networks, as a result of studies on direct and secondary sources of information, respectively by conducting qualitative and quantitative studies at the stakeholder level. involved in describing a user behavior and formalizing behavioral models for different categories of users of mobile technologies and applications, with predictability on emerging technologies. To test the subcomponent of the emerging concept of IoT (Internet of Things), three studies were conducted by combined research methods, namely case studies and semi-directed interview. To test the prototype by analyzing user behavior, based on the

emerging concept of wearable (portable devices), a Samsung Gear S2 smartwatch with a pulse and step number monitoring application was used . Based on these studies, system improvement specifications were implemented and the IoT and wearable sections of the Social Media subsystem were implemented, respectively a study was conducted on the impact of the use of mobile technologies on online social networks which revealed the fact that a large proportion of study participants knew several IoT technologies and used them mostly on a weekly basis. The promotion of the mobile subsystem within the FutureWeb platform was achieved through press releases and direct discussions with test users of the FutureWeb application, communicates transmitted through the media and on the project's presentation website

In the FutureWeb application, we focused on extending the factory functionalities of a Samsung Galaxy S2 device, in order to periodically analyze sensory data and communicate them centrally to the data processing and analysis platform.

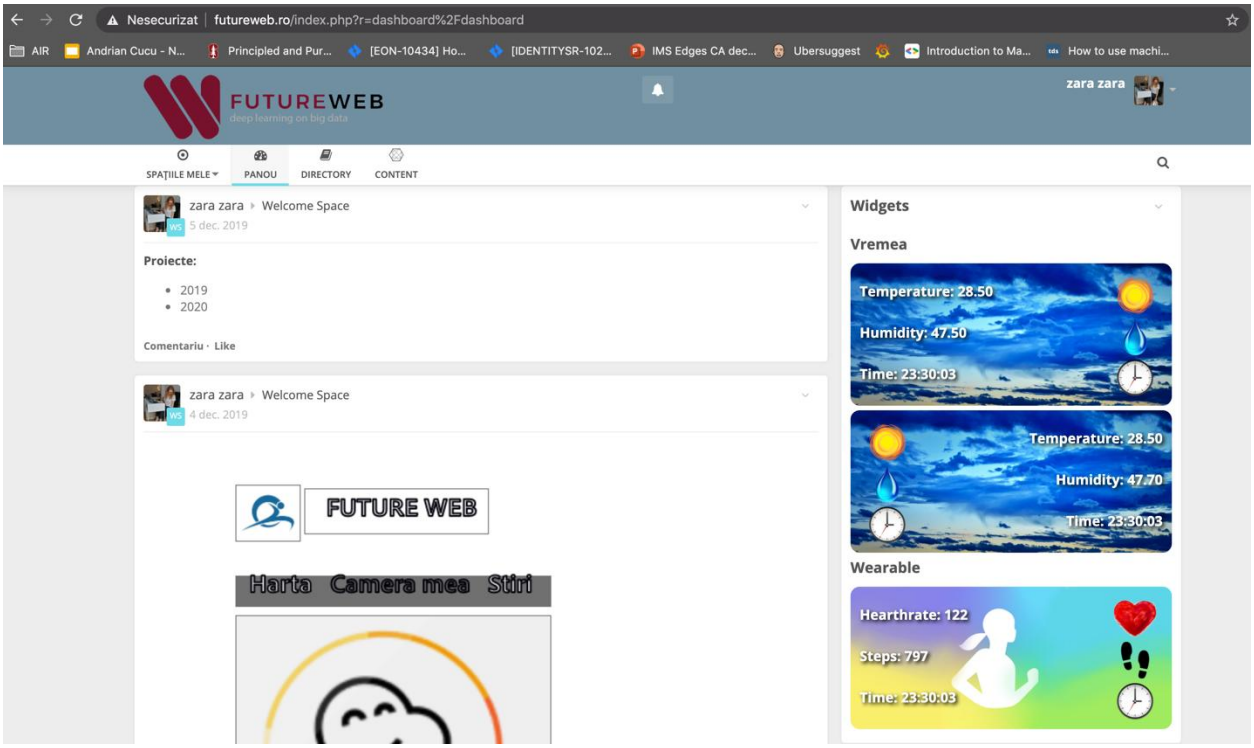
The software solution involves the development of a Widget with the pattern of a clock screen, which takes the sensory values and transmits them to the centralized system, using the API. The centralized system should be ready to collect information and expose it using storage and reading from the database and customized API endpoints. Using the Tizen SDK, the new Widget application was created based on the predefined clock display template.

The extension of the basic functionalities was performed using JavaScript, CSS3 and HTML5 syntax notions. The basic functionality of WordPress has been extended with the ACF Pro and CPT UI plugins, both in terms of managing the custom types of posts, as well as the internal logic of data management and exposure. For the interface between the systems, an API interface that would allow both the storage

of new information and the exposure of the last collected record of all the records collected for the sensor pattern was conceived and implemented.

In the first stage, the data was stored in the form of meta text information attached to the fields defined using ACF Pro, but later, due to very high latency, the data collection and exposure by API was redirected to a MySQL table, related to the tables. from the WordPress kernel.

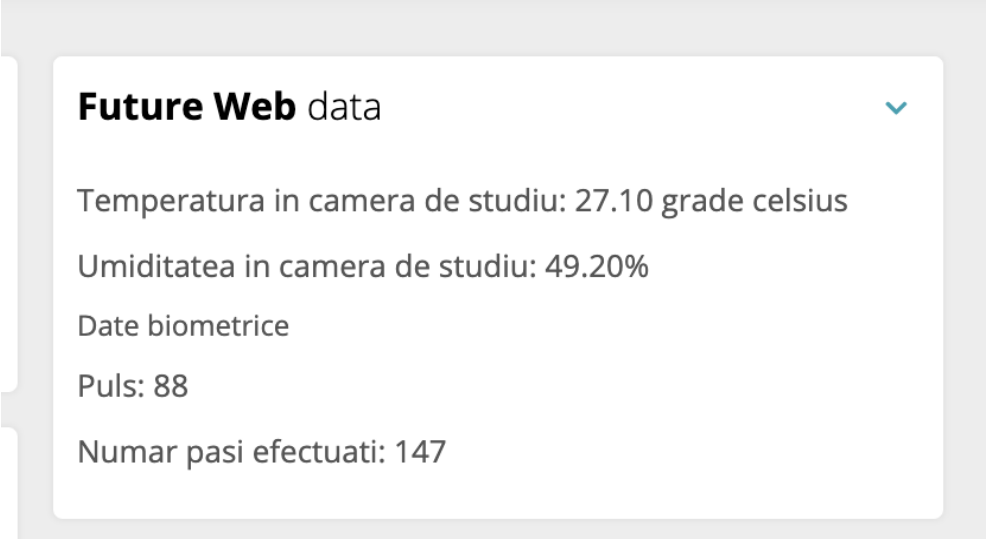
All of the above serve as data structuring and relationship roles, exposing and processing requests at the API level was done by extending the native API functionality of WordPress, with two defined custom endpoints to process and deliver information in a system manner.



This data is essential for user activities and can help correlate data received from the smartwatch with efficiency.

During the reporting period, the implementation of the IoT mode and its integration in the common FutureWeb interface was completed and the structuring of the research and technological services offer and the presentation in the ERRIS platform was completed with the study of the integration of wearable services within an online social network. The implementation of IoT elements in the FutureWeb platform was done in two ways, namely, building a specific HumHub module and integrating a

suite of jQuery scripts that make it possible to communicate with the IoT systems API. Thus, the main IndexController has been updated to include data from two IoT API-specific methods.



Temperature in the study room: 27.10 degrees Celsius

Humidity in the study room: 49.20%

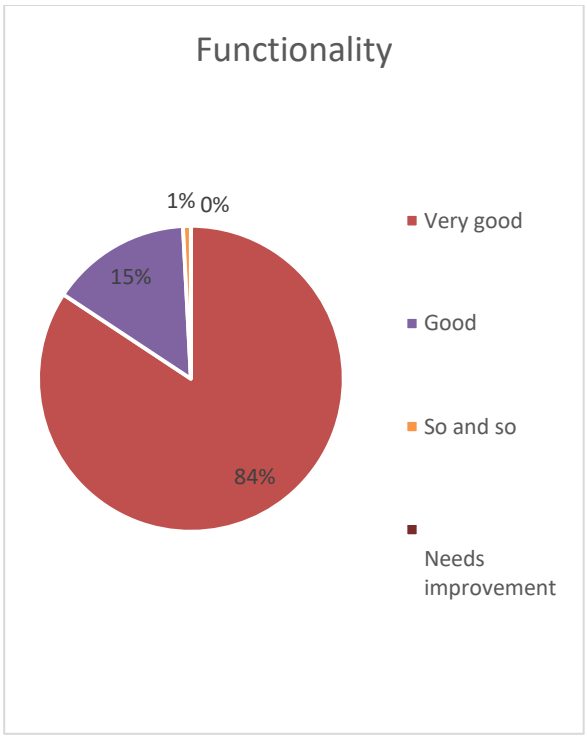
Biometric data:

Pulse:88

Number of steps performed: 147

Unlike the human brain, the computer visualizes visual elements as a series of numerical values and looks for patterns in the digital image, whether it is a still film, video, graphic or even live, to recognize and distinguish the key features of the image. The way a system interprets an image is completely different from people. Computer vision uses image processing algorithms to analyze and understand images from a single image or from a sequence of images.

Image recognition is the ability of a system or software to identify objects, people, places, and actions in images. It uses artificial intelligence technologies and trained algorithms to recognize images through a camera system. Given the growing impact of the phenomenon, we evaluated the efficiency and functionality of the tool integrated in the FutureWeb platform through a questionnaire addressed to its users.



Following the results obtained, we can conclude the following aspects:

- the degree of functionality of the platform is high and satisfactory for potential end-users
- the inserted tools are easy to identify and to use
- the design and interface of the platform allow easy use of integrated tools
- the inserted tools are considered useful and necessary by potential end-users
- image recognition is functional and considered useful by potential beneficiaries. A digital image is an array of numerical values. These values represent the data associated with the image pixel. The intensity of different pixels, on average at a single value, is represented in a matrix format.

The information provided to the recognition systems is the intensities and location of the different pixels in the image. With this information, systems learn to draw a relationship or pattern in subsequent images provided to it as part of the learning process.