Technical University of Moldova

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Title	**System for plant growth study in extreme environments**
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Patent no.	
Description EN	The project concerns the field of ecology and plant protection, namely methods and techniques for the analysis of the plants growth in extreme environments. The analysis and study of plant resistance is important for agricultural crops growth in geographical regions not specific to them. At the same time, the system can be used to study the ability of plants to adapt to extreme growing conditions. The authors developed an experimental system, which creates an isolated environment with autonomous control on climatic parameters (Figure 1): air and soil temperature, air and soil humidity, gas concentration (CO, CO_2, etc.), brightness and IR radiation. The plant growth is also monitored using a video camera. The climate control system is designed based on the Raspberry Pi 3B device (Figure 2) which provides data acquisition from the set of sensors, operations on the air, CO and CO_2 pumps, heating and light source, exhaust fan, water evaporation system and irrigation pump to create extreme climatic conditions. The system is connected to the global Internet network which allows remote process monitoring.