

SAS_EN - A Swarm of Agents for a Sustainable Environment

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Abstract - The environment consists of heterogeneous entities which are working collaboratively to keep the environment sustainable. The general concept of “environmental sustainability” refers to the necessary balance between human wants and needs and the capacity of the natural systems of the earth. Thus to keep the balance of environment the communication among photosynthesis, co₂ emission, environmental conditions, nutrient conditions and nutrient deficiencies of the plant are important. Nevertheless, it has become a major issue in maintaining those conditions within a controlled environment. Therefore, the communication among resource entities that are involved in a certain task of the environment and reaching consensus for protecting and ensuring the sustainability of a given environment is highly important. Thus, this project implements SAS_EN, which collaboratively works for a sustainable environment in a Hydroponics Greenhouse environment. The system has been implemented using agent technology. There are distinct agents dedicated for each task of the environmental sustainability and they collaboratively work to achieve a common goal. Hydroponics, which grows in a controlled environment, has been used for testing and evaluating the solution. The test results have shown its potential in using SAS_EN for solving the distributed problems of the environment.