Innovation for Change

Young Talents | Real Challenges | New Tech

ALFIE

ALgae Facade Integrated Envelope
Challenge: MISE, Water Scarcity in Smart Cities
Proposed by: Team 8

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Problem Statement and Solution proposed (max 300 words - suggested):
Population in the world is currently growing at a rate of around 1.13% (around 80 million people) per year, reaching 10 billion people by 2050. As the world's population continues to grow, finding sustainable sources for food, water and energy becomes of extreme importance. In this scenario Algae with its numerous benefits and advantages has been gaining a central role in the definition of new life-styles that fits in the vision of a sustainable world.
Algae can be considered as one of the most nutritious and dense food on the planet. It is emerging to be one of the most promising long-term, sustainable sources of biomass and oils for fuel, feed, and other co-products. Algae can also be used for water filtration in water recycling systems, representing a key character in attacking water scarcity problems.
Cultivation of Algae occurs mostly on land in large-ponds, which can be identified as the major limit in the mass diffusion of this source. ALFIE aims to overcome this limit proposing a shift from a traditional horizontal cultivation system (on land) to a vertical one. This is achieved leveraging on the existing urban building infrastructure. ALFIE is a modular water filtration system which can be installed in the façades of buildings and which uses sun light to grow algae inside modular panels. ALFIE can be integrated with rain water collection system and with the hydraulic system of the building. The water is filtered and can be reused inside the building, at the same time grown algae are ready to be treated for final uses.

- [Main to do before June 20th]: business model, prototype
- [Action plan for next 20 months]: pilot programs in northern Europe
- [Vision for the future: 20 years ahead]: ALFIE diffusion and integration in smart cities