

BioSmart – Better decisions for Biogas production

Renewable biogas business management tool (bioSMART) for better economic, environmental and process efficiency decisions

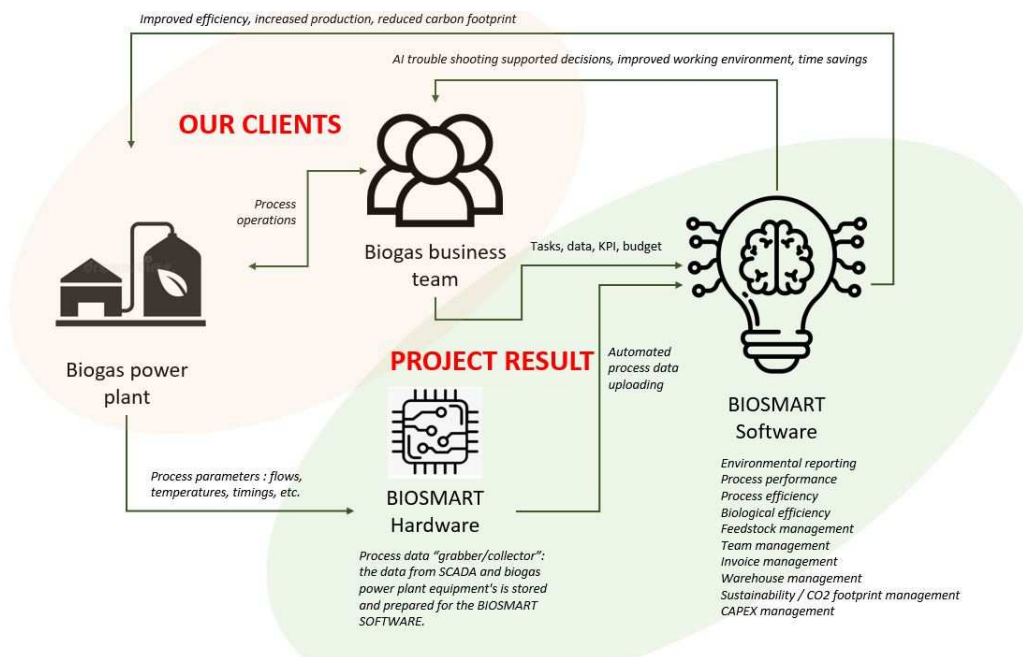


CONSORTIUM

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The previous work, educational experience the network discussions within the researchers encourages us to believe in the potential of green energy production at the large scale. The initial experiments performed in the laboratory in earlier scientific activities proves the concept of BIOSMART to be a perspective solution.



The idea of connecting the biogas business through the single system is open question for many years. The project objective is to develop the business solution for the biogas power plants worldwide which is the biogas power plants data and business management tool for better economic, environmental and process efficiency decisions. The business will use single BIOSMART solution creating time savings, longer production hours, better capex management and operational excellence. The BIOSMART will read, store and upload the biogas power plants data to AI based system where it will be crunched towards best business tracking performance. In addition to all this, it uses different analysis and visualization technologies to provide useful professional information.

The BIOSMART is about creating a tangible, practical plan and achieving real results for every biogas power plant.

MAIN OBJECTIVE

The main goal of the project is to develop an international business management solution for biogas power plants, which aims to make the biogas production process more efficient based on measurements, data and intelligent empirical calculations. The main result of the project in the long term will be a better and easier understanding of the biomethane production business.

The parts of BIOSMART business management solution

- **Hardware unit:** *It is located on site and collects, stores and uploads the data from all the biogas power plants' devices to the central.*
- **AI based software:** *Tracking, controlling and improving the business daily operations.*
- **Process troubleshooting:** *It allows the early warnings of process instability, unwanted production efficiency deviations.*

As the overall result, the BIOSMART will improve the biomethane production in terms of carbon footprint, economy and team management points of view.

All components will be connected by internal VPN networks using best security practices, only the web portal and mobile apps will be accessible over the internet.

EXPECTED BENEFITS

- *A systematic/regular system maintenance schedule allows for better investment management, resulting in longer full load uptime and consequently more end product.*
- *In addition to better management of the anaerobic fermentation process, production will become more efficient and raw material consumption will decrease.*
- *Improved process management with a single-system approach will be better, faster and more reliable, data-driven decisions will lead to more organized teamwork.*
- *The improvement of the efficiency of the process leads to a reduction of the carbon footprint of the biogas power plant. The average biogas power plant will have a reduced CO2 footprint, which is very important for biomethane producers, since the greener the main product (biomethane) is, the more expensive it can be sold on the gas market.*

In addition to central processing and intelligent decision support, the BIOSMART platform will provide a mobile application interface, the main task of which is to facilitate the work of the biogas plant engineer.

The mobile applications receive the current biogas power plant reactor data, collect measurement data, and receive notifications about the operation and maintenance tasks of the biogas power plant.

DECISION SUPPORT for the biogas production

- *Building and operating interfaces between the used sensors and the software system.*
 - *Building and operating interfaces for other data sources.*
 - *Formulation and incorporation of business rules.*
 - *Creation of a system of alerts and warnings.*
- *Implementation of data visualization, creation of dashboards, analyzes and reports.*