



IntelliFood project



Applicant - Seacon Europe Ltd.

The enterprise is engaged in software development, in consulting and in related education. Using multiple technologies, **Seacon** produces unique developments and standard/commercial off-the-shelf (COTS) software for more business branches. The applicant's main profile is the software development. The experiments have many years of experience in software development technologies, and they have experience in multi-stakeholder project work as well. The applicant is a technical and technological partner in the project.

Business partner – HuBakers Ltd.

The enterprise is engaged in trading food raw materials and mixes. The raw materials are purchased from foreign partners, and **HuBakers** makes the complex mixes. These will be delivered to the customers by the enterprise or by more subcontractors, and **HuBakers** does not produce finished products.

As a business partner the company uses some IT solutions, but it does not have controlling/monitoring solution, which is the subject of the application. However, for a long time it is struggling with such problems, which can be solved with the controlling/monitoring solution. The business partner is innovator and food industry expert in the project.

IntelliFood - Intelligent Process Monitoring and Control for perishable foods

With applying intelligence in the food industry the objectives of the project are the next:

- *providing controlled/monitored storage/processing for commodities/mixes/products through objective measures*
- *traceability*
- *reduce the environmental impact of perishable supply chains*

Objectives for business area:

- *increasing competitiveness for the business partner*
- *extending the solution for the supplier and customer*
- *applying the appropriate solution to provide services for other areas of food industry and for other industries*

Intellifood project

Certain materials (commodities) and their mixes delivered or produced by business partner are sensitive to temperature, light and humidity. For example:

- Vegetable cream, vegetable foams: temperature, sun protection
- Fruit fillings: humidity, temperature (have to store in a dry and cool place)
- Powder shaped emulsifier: humidity, temperature, light
- Margarines: temperature (both the too high and the too low temperature are unfavorable)
- Sweetening mix (sugar alcohol): humidity

The storage these materials needs specific parameters, otherwise waste product will be generated, which must be removed or destruct. The storage of mixtures containing sensitive material is really important as well, because the waste material has impact on the product, however the monitoring of the mixture making is essential.



The prepared solution is a system based on wireless sensor network, which is made up of temperature and humidity measurement units (approximately 12-15 sensor points) which are able to communicate with each other. The wiring is not required, the easy to deploy mobile sensors measure the values of the parameters scheduled and communicate the results to a central data store.

The processing application operating in the same place evaluates the measurements and sends alerts for the responsible people according to the rules are set. If the rate of temperature or humidity comes near to a lower or upper limit, an email or an SMS can start a manual intervention.

The regular measurements allow the precise storage of the storage and mixing parameters along the given particular materials and mixes, and in this way the quality management becomes verifiable beside the identification of the product. The customer can get information about the ordered product right from the delivery date.

Mixing of materials depends on the temperature. The using and monitoring of the relevant rules can ensure that all material will be mixed between the corresponding temperature ranges based on objective measurements.

Beside the simple statements based on binding of basic substance / mixture and measured temperature / humidity values, complex information can be prepared as well, which takes account of other factors such as seasonality, storage time, suppliers, etc.