### EPS Project proposal

**Title:** Digital Twins II. Practical application to the city of Vilanova i la Geltrú

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**Introduction:**

A Digital Twin can be defined as a digital representation of a real-world entity or system. In the context of IoT, digital twins are linked to real-world objects and offer information on the state of the counterparts, respond to changes, improve operations and add value. With an estimated 21 billion connected sensors and endpoints in 2020, digital twins will exist for billions of things in the near future. Potentially billions of dollars of savings in maintenance repair and operation (MRO) and optimized IoT asset performance are on the table.

It's a concept related with the transversal topic of the smart cities.

For the Vilanova i la Geltrú city council is important to apply innovation to the city. In this framework, one of the considered targets is to apply the Digital Twins concept to the city.
Last EPS edition a project about Digital Twins was already developed, where the proposed goals were accomplished. In this edition should be made a practical application of the proposed methodology in the previous project EPS.

**Project Brief:**

The Outcome of this EPS project is to develope the practical application of the concept Digital Twins to Vilanova i la Geltrú. And that the proposed methodology can be exportable to other cities. This project is the continuation of the previous EPS project about Digital Twins. The main goals to be fulfilled are the following:

1.- Study the characteristics of the previous EPS project about Digital Twins.
2.- Study existing models to manage the Big Data (including algorithms, 3D representations, decision making, etc.).
3.- Propose a model to manage the Big Data for Vilanova i la Geltrú.
4.- Propose an example of Big Data of Vilanova i la Geltrú, including different parameters (traffic, humidity, etc.). Some of the data can be simulated, if it is not possible to get real data.
5.- Apply the proposed model in point 3 to the proposed Big Data of Vilanova i la Geltrú.
6.- Get 3D representations of the proposed Big Data of Vilanova i la Geltrú.
7.- Decision-making based on the application of the proposed methodology to Big Data.
8.- Pros & Cons analysis of the methodology used and of the obtained results.
9.- Cost-Benefit analysis of the methodology used and of the obtained results.
10.- Propose a methodology to package the proposed methodology, in order it can be exported to other places, to other countries.

**Company**

**Name:** Ajuntament de Vilanova i la Geltrú

**Address:** Plaça de la Vila núm. 8

**Contact person:** Félix Ruiz Gorrindo  fruiz@vilanova.cat

**Project team:**

<table>
<thead>
<tr>
<th>Number of students: 5</th>
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<tbody>
<tr>
<td>Students speciality:</td>
</tr>
<tr>
<td>Computer Engineering</td>
</tr>
<tr>
<td>Telecommunications engineering</td>
</tr>
<tr>
<td>Electronical Engineering</td>
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<tr>
<td>Design Industrial Engineering</td>
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