**Introduction:** (Explain the framework of the project and the problem to be solved)

The CRAAX is a multidisciplinary research group with researchers from the UPC (networking and OS background) and from the Directorate of Innovation at the Hospital Clinic in Barcelona (health background). The CRAAX staff is actively working in providing technologies supporting the development of smart scenarios, particularly focusing on smart transportation, e-health and smart cities. The main concepts the CRAAX is devoting efforts on, focus on flagship research areas, including cloud & fog computing, IoT, collaborative platforms and security. CRAAX activities are linked to international research projects and industry contracts.

However, although such smart scenarios are collecting substantial efforts all over the world, evaluation and validation of the proposed research contributions become a big challenge. Intended to be a technology, scenario and vendor agnostic experimental platform, the CRAAX team is developing an in-lab real testbed for smart cities, putting together different smart devices (cars, traffic lights, etc.) and technologies. Certainly different issues come up from both the technical side (devices communication, services definition, etc.) and the deployment side (printing devices, building the topology, etc.). The work proposed in this project falls into both sides, thus the work to be done should end up with remarkable solutions to some of the problems above that will be decided within the team according to the members profiles.

**Project Brief:** (Describe the project specifying the main objective and its outcomes, design specifications, etc…)

The main project objective is the design and deployment of some of the characteristics envisioned for the smart city testbed deployed at the CRAAX lab. To that end, the work should address the following bullets:

- service definition for a smart city to be deployed on the testbed for experimental validation
- design and deploy of some smart cities components (bus stops, traffic lights, etc.)
- contribute to the design of the whole smart city testbed
- sync up with the CRAAX team for complete alignment and to avoid deviations
- deliver a business model for the service to be developed

The project outcome should be a service running on the smart city testbed, to be deployed on the diversity of smart city components and validated according to some policies and rules.
**Company**

<table>
<thead>
<tr>
<th>Name:</th>
<th>Advanced Network Architectures Lab (CRAAX)</th>
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</thead>
<tbody>
<tr>
<td>Address:</td>
<td>2nd floor, NEAPOLIS building, Vilanova i la Geltrú</td>
</tr>
</tbody>
</table>
| Contact person: | Xavi Masip (Company supervisor)  
Eva Marin (Academic supervisor) |

**Project team:**

<table>
<thead>
<tr>
<th>Number of students:</th>
<th>Ideally 5.</th>
</tr>
</thead>
</table>
| Students speciality: | X Business Management (ideally 1)  
☐ Mechanical engineering  
☐ Electrical engineering  
☐ Electronics engineering  
☐ Chemical engineering  
X Computer engineering (ideally 1).  
X Telecommunications engineering (ideally 1).  
X Design (ideally 2).  
☐ ............. |