# Web Interface for Smart Lighting System Configuration

SmartNodes (https://www.smartnodes.be) puts high technology at the service of human well-being, quality of life and cities sustainable development. We bring solutions that are deeply thoughtful in the fields of smart lighting, mobility, security, safety and environment. Street lights are the backbone of the Smart Cities. An existing infrastructure available for state-of-the-art technology. Our Smart Lighting System creates "light bubbles" following the road users wherever they go. By varying dynamically the light emitted by each luminary, we minimize power consumption while maintaining the lighting standards. Each road user receives a dedicated light bubble especially adapted to his needs and his speeds.

Our electronic devices are installed on top of lighting poles and can contain various movement and speed sensors (Passive infrared and Microwave sensors). Each is placed at a certain height, tilt and orientation, which determine a Mounting Configuration. Since each site (or even pole) has its own characteristics (street dimensions, sidewalks, presence and width, trees, etc), a different set of values may be required. The idea is to create an intuitive tool that can quickly configure and display these detection zones on a map, enabling the end-customer to determine and optimize the detection characteristics of their project.

This work aims at:

1. Developing a web interface platform which takes in entry a PDF or a DWG (https://en.wikipedia.org/wiki/.dwg) file containing the ED map details of the site (which can be a street, a car pool, a park, etc). This has to be an intuitive and ergonomic design for an immediate usability by the end customer.
2. On this map, within the web interface, each pole can be added manually (by a colored dot for example) or loaded with a special file format (given by SmartNodes). Group of poles can be created and manipulated to optimize the user's experience.
3. On this map, both the inclination, the installed height, and the tilt of each SmartNode's product (installed on each pole) can be set up both manually or automatically, individually or by group. Other options can be implemented.
4. Based on the individual setup of each pole, a computed detection pattern of each sensor will be automatically projected on the 2D map (SmartNodes will provide the information regarding the detection pattern). The geometrical computations are executed on a back-end server. Those should be ideally real time updated for the best user experience.
5. Creation of a secured access which permits each customer to log in. An admin user allows SmartNodes to easily handle customer accounts. A period of validity can be set for an account so that the customer sees its access denied after expiration of its account. Safety and warning requirements of the application have to be met.
6. A DataBase will be implemented to handle all the properties and results of the project.
7. The output of the projection has to be exportable in PDF, showing the detection pattern combined with the map. All relevant information regarding the poles has to be shown. A customized level details can be implemented.
8. The global project has to be scalable and modular, authorizing further development/ customization by third parties. The whole project should be ideally developed on a GNU/ Linux distribution.