

LIVING LAB ECKART- VAARTBROEK

In Eckart Vaartbroek, one of the two lighthouse areas in Eindhoven the partners KPN, Woonbedrijf and the municipality of Eindhoven started an interactive process with the citizens of Eckart-Vaartbroek. Goals was finding the best innovative solution to encourage sustainability projects, but also to stimulate the engagement and participation of residents. The result? A new interactive lighting route for pedestrians and runners, and a digital platform that visualizes chosen energy saving measures at home, and realisation of the chosen energy saving measures.





Renovation in progress in Vaartbroek.

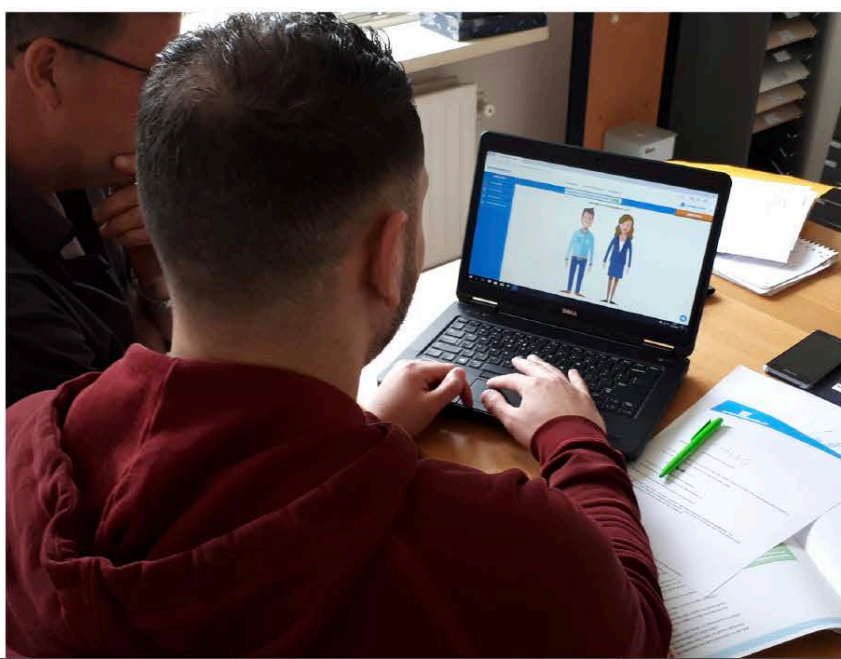
RENOVATION FAMILYHOMES VIA ICT

On the digital platform 'WoonConnect' families can view their own house in a digital3D model. When they add energy saving modifications like solar panels, roof insulation and extra windows, the system calculates the effects on their energy bill. Woonconnect was being used in preparation for the renovation of 140 houses in Vaartbroek.

Housing corporation Woonbedrijf decided to renovate the houses individually, according to the tenants wishes. An unique situation, because usually housing corporations tend to renovate whole housingblocks all at the same time and in the same way. Woonbedrijf and the families discussed their wishes, including the environmental an financial impact individually at the kitchen table, with WoonConnect as a tool.

Survey

Woonconnet also delivers an online survey where every household can give their opinion on various topics. How do they live in their homes at present? How do they want to live there in the future? How do they think about sustainability and what they can contribute? Which are the pros and cons of the neighbourhood and their house? The results of this survey give Woonbedrijf and the municipality an insight in het their engagement in sustainability projects, and overall contentment with the neighbourhood.





Residents brainstorming on the possibilities of smart lighting solutions.

PUBLIC SPACE FOR A SPORTIVE LIFESTYLE

How can innovative lighting contribute to the neighborhood and its residents? During several brainstorming sessions with the residents, three themes were identified as interesting possibilities to be tackled by smart lighting solutions: be a trigger for a sportive life, emphasize the beautiful surroundings and feeling safe in the dark.

Social interaction

The municipality has set a route around two ponds and placed dimmable lights on the right side of the southern pond. The main advantage of the smart route around the ponds in Eckart? People are encouraged to move! But also: residents interact during walking or while sporting, such that they get to know each other, enhancing the social control as well.

Advisory group

In order to guarantee the use of the running route, a five-year agreement between the TU/e Industrial Design and the Fontys High Schools has been made. TU/e and Fontys will explore and develop new exercise opportunities, together with the neighbourhood and the municipality. For example, we will expand the route further with personalized training guidance.

On the longer side of the pond, next to the shopping mall, it is quite dark and that causes an unsafe feeling. The installation of the light masts brought few improvements, yet the opinions were divided. We have chosen dimmable light masts, in order to reproduce a moonlight atmosphere, which is less intense than the street lighting, but bright enough to make people feel safe. The light masts also turn off after a certain time, the light only turns on when people walk the path.

Around two-hundred residents of the neighbourhood Eckart-Vaartbroek were present at the official opening of the innovative lighting route at 2nd October 2017. For the opening children from schools in the neighbourhood were invited to run the route for the first time.



LIVING LAB LIGHTS

“The running route”

The small tiles are twenty meters distance from each other, forming together a smart training aid with light for young and elderly. The route runs around the ponds and is 2.5 km long. The lights on the ground go one-by-one on, for a few seconds, such that one can follow this highlighted trail. This way walkers and runners are encouraged in their activities, allowing them to exercise in a pleasant and challenging way. The lights are not only visible in the dark, they can also be noticed during the daytime. If the system is not activated, the lights are just off.



STARTING POINTS OF THE ROUTE

You can start the route at three different points. Sign boards are available explaining how it works. You can choose four different speeds. For example, walk slowly, walk on a faster tempo, run smoothly and run for experienced people. In addition to these four standard options, there are opportunities for specific groups, such as schoolchildren or sports associations.

Smart lighting

By subtly illuminating the foot-path, the persons using the route can enjoy the beautiful nature, especially in winter. The light is not switched on all night long. At pre-determined intervals, it turns off and it turns on again gradually if someone walks on it, triggered by a motion sensor. This ensures safety lights, combined with quiet darkness. The luminaires have a anti-reflection cover on the side of the water, such that the light does not shine directly onto the water. For example, the water bats are not disturbed by the light, if they hunt just above the water surface.



Crossing points

In order to walk or run around both ponds, you have to cross the Planetenlaan street. When the system is activated, a smart system warns nearby car drivers with lights that someone wants to cross the street. This does not mean that you have priority, you still have to stay alert!





Glow 2017 - Blob Eindhoven.

LIGHTHOUSE CITY EINDHOVEN

How can innovative lighting contribute to the neighborhood and its residents? Eindhoven is the centre of the Brainport Region, today one of the three top economic engines of The Netherlands, delivering about 14% of the national GDP. The Dutch consortium consists of five partners: VolkerWessels, Woonbedrijf, Technische Universiteit Eindhoven, KPN and the Municipality of Eindhoven.

In Eindhoven, two districts will be transformed into sustainable living environments during the course of Triangulum. The former Philips industrial complex in the Strijp-S neighborhood will become a creative smart district. An innovative concept to clean up contaminated land will double as a means of producing energy. A district-wide ICT solution will allow residents to access different kinds of infrastructure, such as booking electric vehicles from a district car sharing scheme or using smart parking concepts. In this way, the IT-based tool will help residents to develop sustainable patterns of energy and mobility behavior. A different set of challenges is posed by the Eckart-Vaartbroek district, where energy-efficiency renovations will be carried out on the social housing stock that predominates in this area. In order to precisely calculate the energy savings, the project will use an IT-based instrument capable of modeling costs and yield in a 3D visualization of the district.

This project is part of the Smart Society Program of the municipality of Eindhoven. This program focuses on a future in which the city itself takes initiatives by making smart use of data, technology and design to improve the public spaces and quality of life in Eindhoven.

Do you have any questions or would you like more information? Please contact Delia Mitcan, telephone: 0031-627821560 or via e-mail d.mitcan@eindhoven.nl



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The renovation of the roof is completed.

VISUALISATION TOOL WOONCONNECT

The 3D-ICT tool Woonconnect was developed to facilitate an interactive refurbishment process by allowing families to manage their energy consumption. The tool will visualize chosen measures and presents the cost effects in terms of rent/costs. It will also enable tenants to compose the combination of measures and plan the moment of realization energy costs simultaneously.

Of course Woonconnect takes, by calculating the energy use, the number of family-members into account.

Benefits

After the renovation there will be an increased energy and resource efficiency. Also it will create a database of possible solutions and measures matched to a specific type of housing and create a live 3D BIM archive of housing stock to be used for future maintenance. Moreover, it will support the process by registering decisions and generating necessary documents.

Woonconnect is not only used by families in the Woonbedrijf-houses. Approximately 600 home owners in the neighbourhood received information by letter, inviting them to participate in WoonConnect as well.

WoonConnect shows residents a 3D model of their house

