Glowing
Network

Team Almelo

VISION

"**Nature inspired lighting, nature as part of lighting.**"

Team Almelo

MISSION

"Connecting nature with a safe and sustainable lighting system"

Team Almelo

Our team

Rayhan Aryoseno Bayuaji

Creative Technology,
Interaction Technology

Ianthe Henquet

Industrial Design
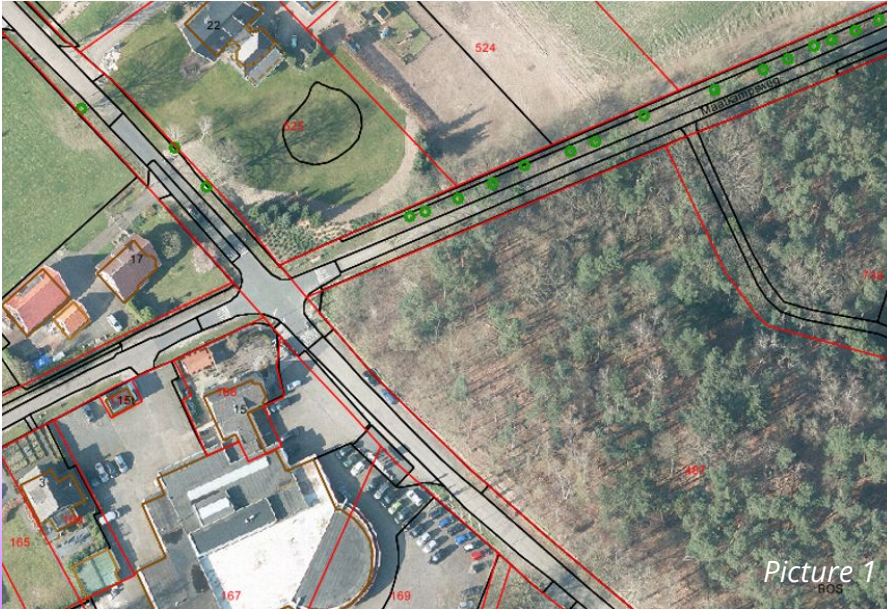
Jelle Faber

Electrical Engineering

Our team

Warnakulasuriya Shane Fernando

Architecture, Urbanism
and Building Sciences

Anne-Roos van der Zalm

Industrial Design

Picture 1

- Minimal lighting
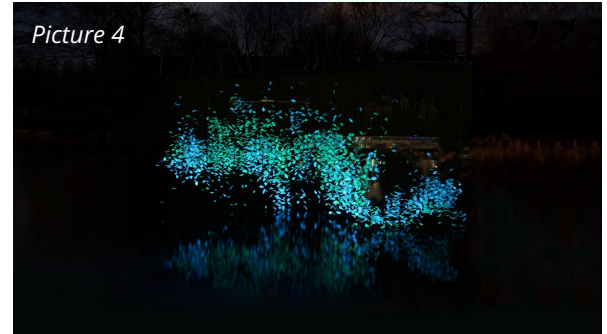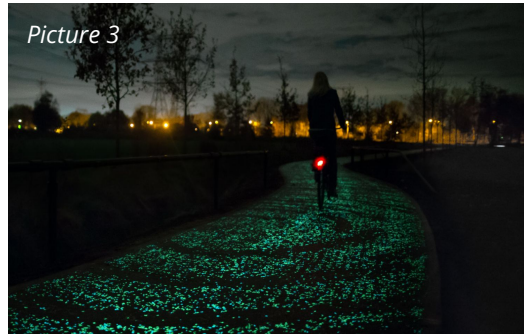- Unsafe
- Remote
- Biodiversity

Location

Tusveld - Almelo

Inspiration

Avatar   Daan Roosegaarde

Picture 2

Picture 3

Picture 4

Studio Alex

Inspiration

Joris Strijbos   Bruce Munro

Picture 5

Picture 6

Picture 7

Mycelium Network

Glowing Network

A mycelium-inspired glow in the dark network that rises from the ground and wraps around trees

- Illuminates the trees and both sides of the road
- The drivers will be guided by the illuminated trees to indicate where the road is.
- Ensures the users of the road are guided in the right direction.

Specifications

Design

3D models & sketches

Hardware

List of hardware utilities needed for the installation
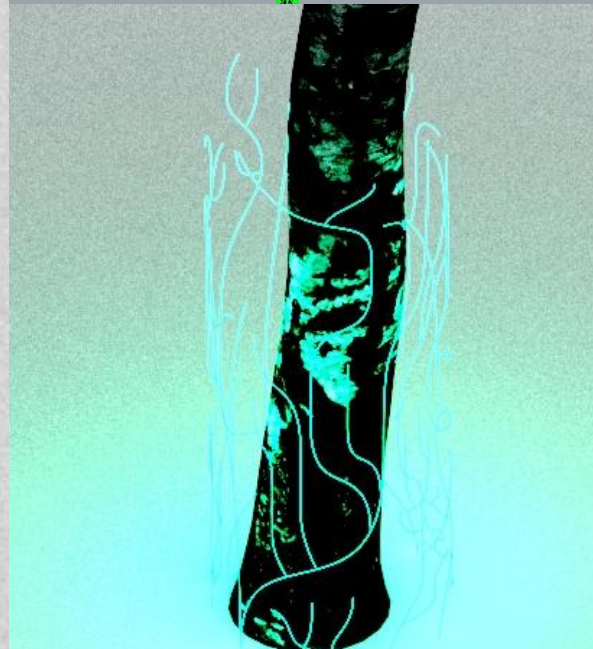
Software

Programming software

Lighting

Type of lighting used in the installation

3D Model

Sketch

Lighting

The lighting of the installation will feature primarily LED lights (fiber optics) however if possible, glow in the dark material would also be favored to be used in the installation:

LED Light (Fiber Optic)

- Fiber optics will be used to diffuse the light.
- Lighting will be placed on the tree and would create a mycelium network inspired pattern
- flexibility of the fiber optics allows for many possibilities

Glow in the dark

- Secondary Lighting source
- Will be placed on the road
- This consists of recycled glass and phosphor pigments
- Charges during the day by the sunlight and during the night it will emit a low level of light.
- Embedded LED will be added if lack of daylight influences the system.

Hardware

Solar Panels

Solar panels are used to harvest solar energy and transforms in into the electrical domain

Battery

Lipo battery (3.7 V) will be used to store electricity generated.

Battery charger/ regulator

Battery charger ensures the battery is safely charged. And the regulator increases voltage if it is required

Microcontroller

Used to control the lighting and distribute the power most likely esp32 or raspberry pico will be used arduino needs a regulator

Lighting

LED (WS2812B) Lighting will be used & glow in the dark

Base Material

Base material to attach the lighting to the tree

Software

- The main programming language which will be utilised is **C++** and the **Arduino IDE** as the **arduino** would be used as the microcontroller for the installation

- Arduino would be responsible for determining when the lights should be on (and off) and how the power will be distributed and managed throughout the entire installation

- Though micropython could also still be used if for some reason the arduino IDE does not function sufficiently

Moscow Requirements

Must Have	• Installation uses LED Lighting • Installation utilises the tree as the lighting • Installation illuminates the road • Installation utilises solar panels/green energy • Installation hardware accounts for the worst month of sunlight • Installation hardware is self sufficiently powered • Installation design is inspired by nature • Installation can be self-sustaining for a minimum of 6 months
Should Have	• Installation uses glow in the dark • Installation utilises a base before attaching lighting to the tree • Installation is vandalism proof
Could Have	• Installation uses retroreflective material • Installation features 3 forms of lighting • Installation utilises recycled or bio-material • Installation features a speed tracker interaction • Installation features an interactive experience for pedestrians/cyclists • Installation features a pedestrian walk

Planning

Realisation 1
Testing

Presentation
Floriade

January   **February**   **March**   **April**

Feedback
Prototyping

Realisation 2

Thanks!

Do you have any questions?

Feel free to contact us at j.c.v.d.zalm@student.tue.nl

CREDITS: This presentation template was created by **Slidesgo**, including icons by **Flaticon**, and infographics & images by **Freepik**

Sources

Picture 2: https://www.youtube.com/watch?v=-2L7BPN78M4
Picture 3: https://www.studioroosegaarde.net/project/van-gogh-path
Picture 4: http://www.studio-alex.net/2014-/-amsterdam-light-festival-amsterdam-nl
Picture 5: http://jorisstrijbos.nl/?page_id=448
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