CELTIC-NEXT
Proposers Day

25th September 2019, Istanbul

Pitch of the Project Proposal

Sustainable Smart Automated Farming

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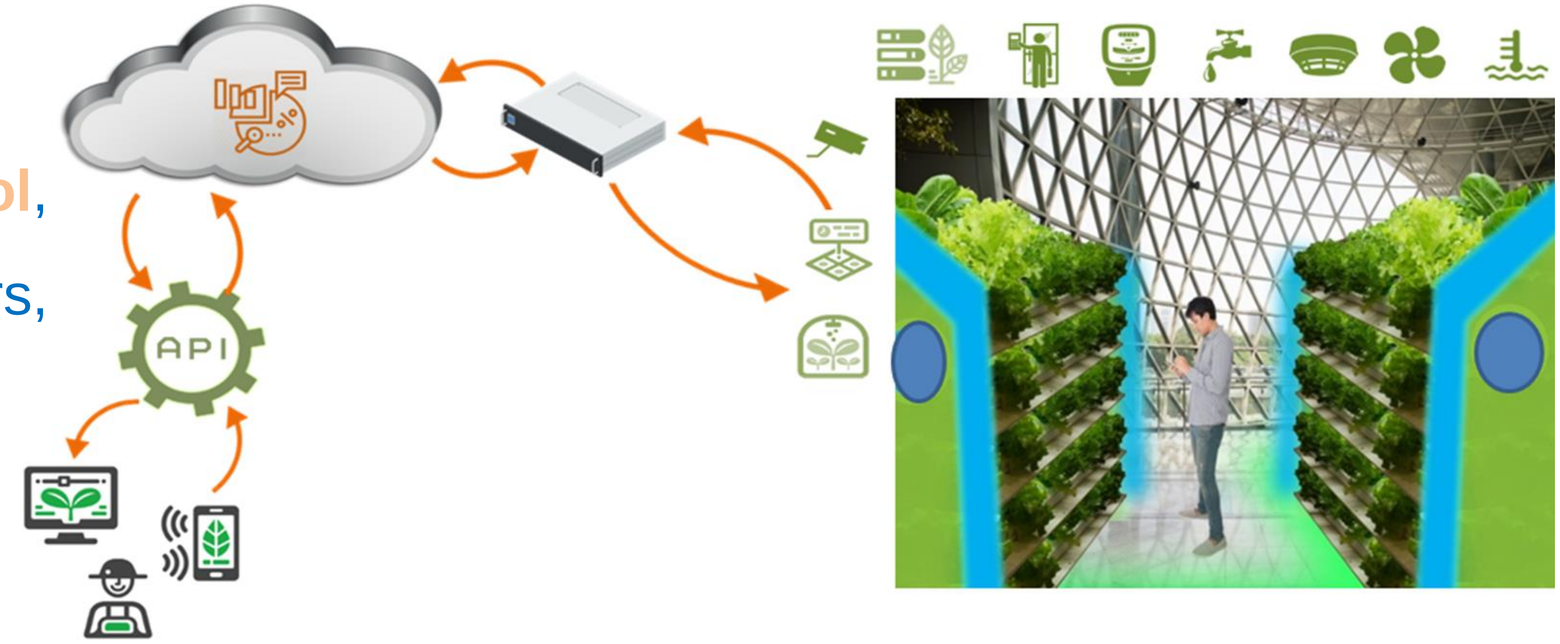
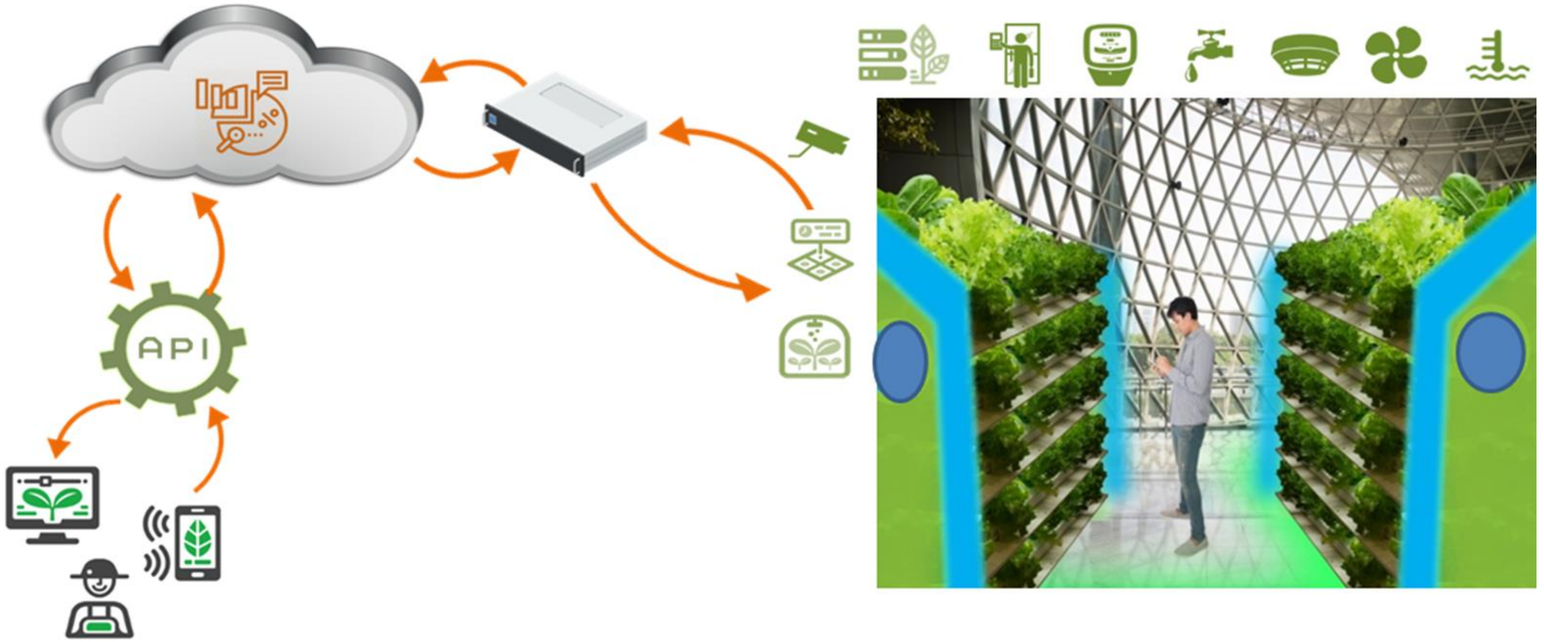
Teaser

- **ViFARM,** automated **indoor farming** with **AI**
- Innovation:
  - sensor-based **climate control**,
  - infrared **cameras** and sensors,
  - fine measurements of **temperature**, **humidity**
  - **plant growth**,
  - gravity-fed drip **irrigation**..
- **Photonics**, wavelength, intensity, angle control.



Teaser

- **Smart cities**
- **Agriculture**
- Collaborations will result in innovative smart city products



VIFARM, Icten Inan, Project Coordinator, icten.inan@karel.com.tr

Organisation Profile

- Karel's core business is to design and manufacture telecommunication, IoT, 5G solutions and their peripherals
- 2400 employees, 170 R&D
- 10 million boards/year
    - Local market leader in telecommunication solutions
    - 15 million users in 30 countries
    - 3rd largest PBX / IP PBX manufacturer in Europe
    - 2nd largest PBX / IP PBX brand in MEA region
    - 1st brand in TDM port shipments in MEA region

Proposal Introduction

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- **Vertical Indoor** and **Conventional** Farms
- Analyze **plant growth**
  - LED intensity and spectrum
- **Autonomous vehicles** for farmers
  - conventional-**tractors**/indoor **robotics**
- **Computer vision** for farmer areas
  - Conventional-**Drones**/Indoor-cameras
- **IoT framework** and visualization platform
- Plant types - **KPI** definitions
- Planting **scenarios**

Proposal Introduction

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- Framework for **cloud-based** management,
  - sensor devices
  - cameras
  - government and private subsystems (grocery stores and big market chains)
  - Automated Demand and Response (**ADR**)

Proposal Introduction

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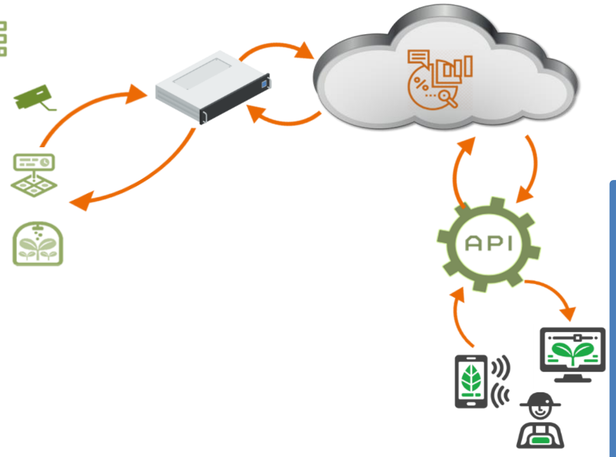

Collaboration points

- AI
- IoT Architecture
- Autonomous Vehicles/Robots
- Monitoring
- Use case provider

- Vertical Indoor Farm
- Conventional Farm

Looking for Partners

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Proposal Introduction (2)

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- **Outcome:**
  - Monitor **light**, **water** and **additives**
  - Monitor **growth** of the plant from seed stage till **maturation**
- Sample installations.
  - **tomato plant** in closed area
  - **vineyard**
- Algorithms
- Data visualization, monitoring the system
- The light usage analysis (the flux and angle of light)
- Project duration: **28 months** with **7 work packages**

Partners

- Partners in the project will produce
  - **sensor** equipment,
  - **computer vision**
  - **artificial** intelligence
  - **energy efficiency**, energy **harvesting**
  - researches on effect of **light**
- Formerly contacted with partners from **Turkey**, **Spain**, **Finland**, **Portugal** and **Romania**

Contact Info

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For more information and for interest to participate please contact:

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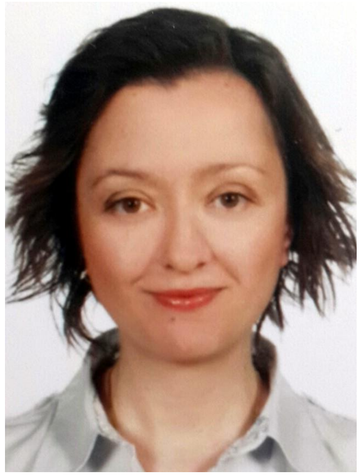

Presentation available via: