

# SMART – SUSTAINABLE – RENEWABLE CAR PARK

 **Eurogia** 2030



- ArmaPRO

High Security Barrier and  
Security Booth Systems  
Manufacturing



- ArmaCITY

Parking Management  
Systems and Smart Cities



- ArmaSOFT

ERP, CRM, B2B, B2C,  
Access Control Software



- ArmaCARE

Technical Support Services





73

COUNTRY

5000

CUSTOMER

6

REGIONAL DIRECTORATE

24

DEALER

9

CERTIFICATES



AND THIS IS JUST THE BEGINING

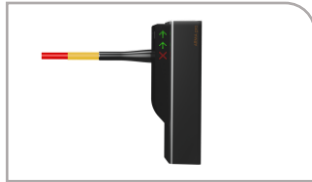
# About Us

- Our goal when establishing Arma Kontrol in 2006 was to;
- To make the World hear a Turkish companies name on security & barrier systems industry. When we look today, you can see signature of Arma Kontrol on esteemed projects not only in Turkey, in many countries of the World.
- Our products, which are researched, designed and developed by our engineers have successfully awarded with international crash test certifications.
- In the beginning, we set off the motto as “Global Barrier Brand”. In this path, We are steadily growing by adding new successes on this long way with our R&D investments, professional staff.

## Product Groups



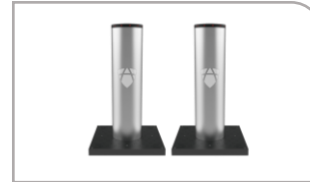
**Access Control Systems**



**Arm Barrier**



**Road Trap**



**Bollard Barrier**

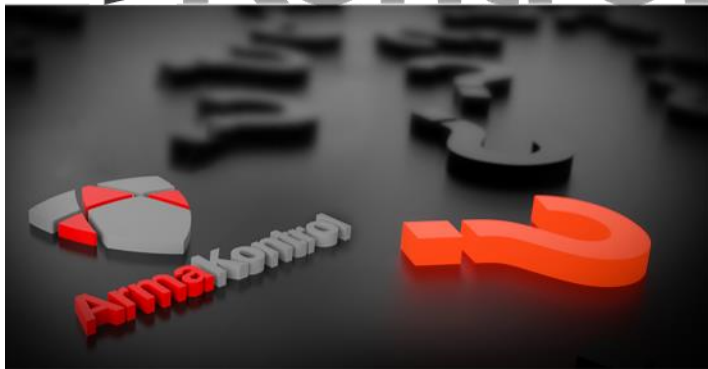


**Road Blocker**



# About Us

## Why **Arma** Kontrol



Because;

- We are manufacturer
- Our Engineering quality has been proven by International crash tests
- We received the 2019-2020 Barrier and Security Systems of the year award
- As of 2022, we exported to more than 5000 customers and 73 countries
- We manufacture to global companier in the industry
- The design of product are done by R&D and production of the products are done by Arma Kontrol
- We have international certificates
- Our products as strong and long-lasting
- Technologies and products that we have produced, First Ones in the World and in The Turkey
- Providing solutions from mechanical production to electronic architecture and software.
- We have domestic international technical service offices and authorized dealers
- We provide production and services in accordance with ISO/ CE/ EAC /TSE-HYB standards, which are international product quality and safty certificates.

**You Can Safely Choose The **Arma** Kontrol Brand**



# PROJECT SCOPE

## Project Name

Smart-Sustainable- Renewable Car Park

## Project Coordinator

Arma Kontrol Group Company ( <https://www.armakontrol.com/en/> )

## Project Partners

## Deadline:

17th November 2023



# PROJECT PARTNERS

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## ARMA KONTROL GROUP COMPANY

1. **Project Management and Coordination**
  - a. *Project Coordination, Organization and Communication*
  - b. *Budget Tracking and Management*
  - c. *Risk Management and Risk Planning*
2. **Automatic Barrier System**  
*Barrier System Used at The Entrance and Exit of The Parking Lot*
3. **PLC and Electronic Board Hardware Design**  
*PLC and Electronic Card Design To Control Smart Systems*
4. **Smart payment system design and implementation**
5. **Personal Parking Barrier Design**



# PROJECT PARTNERS

## WOC SOFTWARE SOLUTIONS

### 1. Smart Parking Mobile Application Development

- *Android APP*
- *IOS APP*
  - *Reservation*
  - *Navigation*
  - *Payment*
  - *Charging status of the EV*
  - *Location of the vehicle*
  - *Usage Time*

### 2. Smart Parking Lot Management System Software with Artificial Intelligence Algorithm

### 3. Image Process

- *Vehicle license plate recognition*
- *Defining the type, model and color of the vehicle*
- *Speed Detection*



# PROJECT WORK PACKAGE

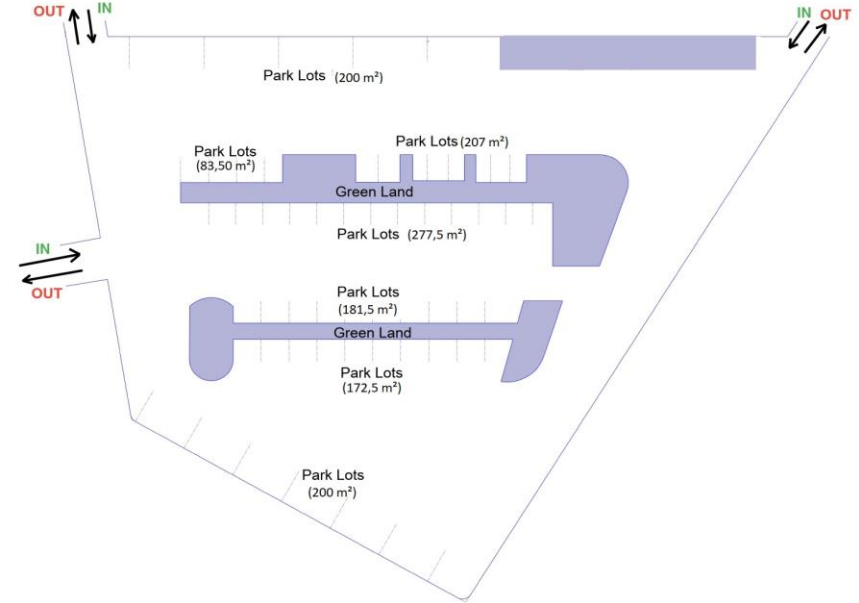
WP1	Project Management and Coordination	Arma Kontrol Group Company
T1	Project Coordination, Organization and Communication	Arma Kontrol Group Company
T2	Budget Tracking and Management	Arma Kontrol Group Company
T3	Risk Management and Risk Planning	Arma Kontrol Group Company
WP2	Identify Requirements and Design	Arma Kontrol Group Company and Partners
T1	Identifying Use Cases Requirements and KPIs for Smart Service Infrastructure	AI Advisor
T2	Revealing Communication and Software Design and System Architecture	
T3	Market Analysis and Identification of New Business Models	
WP3	Communication and software infrastructures	
T1	Smart Parking Mobile Application Development	WOC
T2	Development of parking lot management system software algorithms	WOC
T3	Development of Communication Infrastructure Software	WOC –Yiğit Acar
T4	Integration of Communication and Software Systems into Smart Parking Management System	WOC–Yiğit Acar
WP4	Electronic System Design and Integration	
T1	In-cabin card, Plate Recognition System and PLC designs	Arma Kontrol Group Company
T2	Communication Infrastructure (LoraWan) System Designs	PARTNER REQUIRED
WP5	Physical Infrastructure Design and Project Design	
T1	Entrance-exit Cabinets and Barrier design	Arma Kontrol Group Company
T2	Energy Management System Infrastructure Design and Project Design	PARTNER REQUIRED
WP6	Smart parking infrastructure	
T1	Installation of physical infrastructure and integration into the system	WOC
T2	Communication and Software integration	WOC
T3	Installation of solar panels	PARTNER REQUIRED
T4	Installation of EV charging infrastructure	PARTNER REQUIRED
T5	Payment System Integration	PayCore Payment Solutions
WP7	Dissemination and Commercialization	
T1	Dissemination	
T2	Commercialization	





# ESTIMATED PROJECT AREA

Istanbul / Kağıthane Cultural Center Car Parking Area (1500 m<sup>2</sup>)



# PROJECT OUTLINE

Solar panels will be applied to a part of the parking lot area. Since the solar panel system will be installed with a roof inside the parking area, there will be no reduction in vehicle parking capacity.

The place to be applied as a pilot in the project is a parking lot with a capacity of 100 vehicles in Istanbul.



Figure - 1

(1) <https://www.varista.de>



# PROJECT OUTLINE

We are installing an on-grid solar energy system to meet the energy requirements of our car park and to adopt a sustainable environmental policy.

Furthermore, when the solar panels generate excess energy, this excess energy will be fed back into the grid, thus contributing clean energy to the environment.

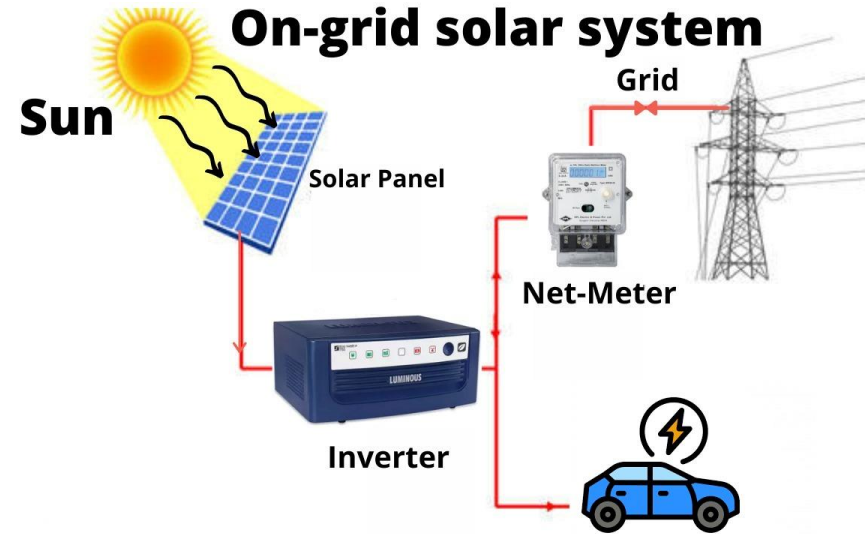


Figure - 2

(2) <https://www.csmsullyrugby.org/on-grid>



# PROJECT OUTLINE

A solar panel system will be installed on an area of 1500 m<sup>2</sup>, and electricity will be generated.

Vehicles will be charged from electric vehicle charging units in a hybrid way with the electricity generated.

Initially, from 2 to 5 charging units are planned to be installed.

According to the calculations made in the region where the system will be installed, it is in a position to generate electricity that can charge about 12 electric cars with an average battery (66 kW) with 1 hour of electricity generation, although it changes periodically. In this way, renewability will be ensured.



Figure - 3

(3) <https://eu.mouser.com/amphenol-sensors-ev-infographic/>



# REQUIREMENTS

## Electricity Generation Table by Month for Kağıthane Cultural Center Parking Area

MONTH	Global Radiation Values of Istanbul Kağıthane District (kWh/m <sup>2</sup> -Day)	Sun Time (Hours)	Solar Panel Area (m <sup>2</sup> )	Productivity	Daily Power Generation (kW)	Hourly Power Generation (kW)	Monthly Power Generation (kW)	How many vehicles does it charge on average per day? (Average 66 kW battery)	Average Number of Vehicle Charges per Hour
JANUARY	1,39	3,40	1500	20%	1417,8	59,1	42.534	21	1
FEBRUARY	2,17	4,29	1500	20%	2792,8	116,4	83.784	42	2
MARCH	3,10	5,27	1500	20%	4901,1	204,2	147.033	74	3
APRIL	4,28	6,62	1500	20%	8500,1	354,2	255.002	129	5
MAY	5,56	8,41	1500	20%	14027,9	584,5	420.836	213	9
JUNE	5,90	10,20	1500	20%	18054,0	752,3	541.620	274	11
JULY	5,71	10,69	1500	20%	18312,0	763,0	549.359	277	12
AUGUST	5,20	9,70	1500	20%	15132,0	630,5	453.960	229	10
SEPTEMBER	4,09	7,91	1500	20%	9705,6	404,4	291.167	147	6
OCTOBER	2,70	5,12	1500	20%	4147,2	172,8	124.416	63	3
NOVEMBER	1,60	3,82	1500	20%	1833,6	76,4	55.008	28	1
DECEMBER	1,19	3,01	1500	20%	1074,6	44,8	32.237	16	1



# PROJECT OUTLINE

Payment methods through the mobile application, the ability to make parking reservations at any time, and led space guidance in the parking lot or guidance services through the application will be offered.

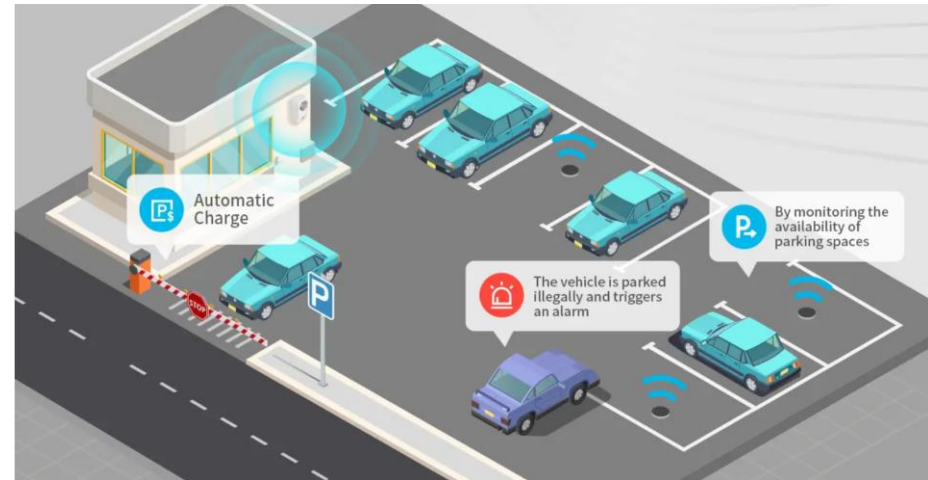
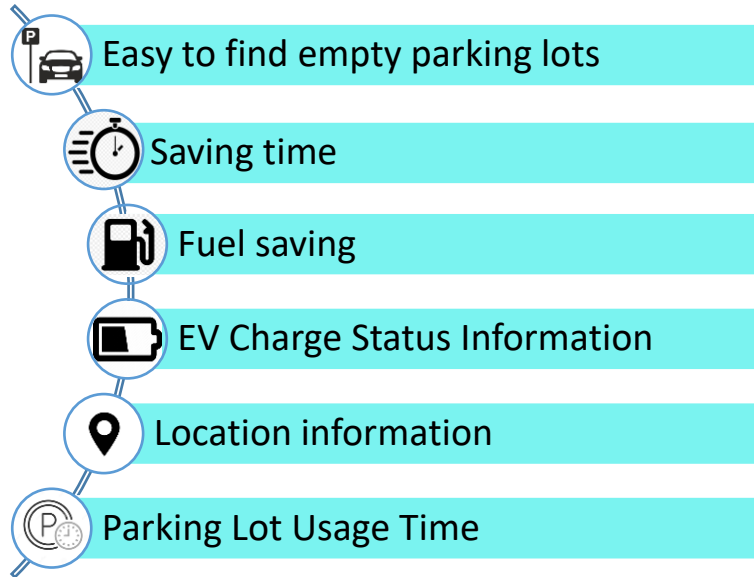


Figure - 4

(4) <https://www.mokosmart.com/smart-parking-system-using-iot/>





# PROJECT OUTLINE

By using LoRa-Wan technology in the parking lot, the status of the parking spaces will be monitored and the information flow from the sensors will be instantly transferred to the mobile application.

In addition, the customer can create a parking reservation for electric vehicle charging stations through the mobile application.

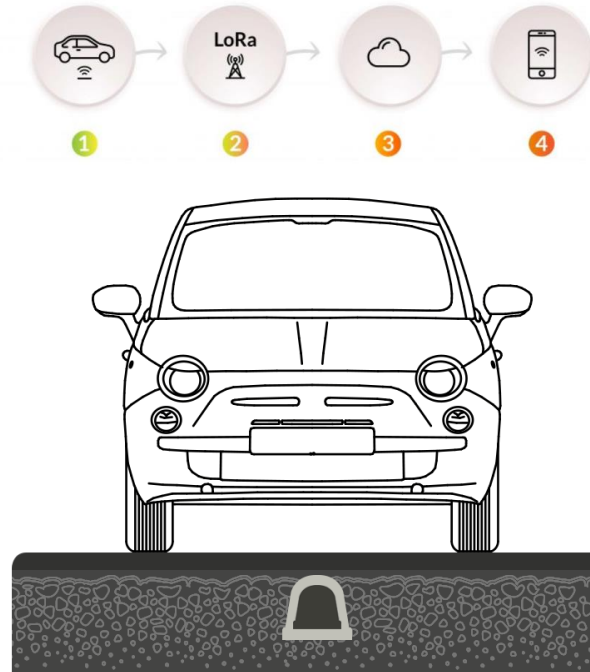


Figure (5)



(5) <https://www.mokolora.com>  
<https://smartparkingsystems.com>

# PROJECT OUTLINE

## Artificial Intelligence and Machine Learning

The mobile app will use artificial intelligence and machine learning methods to personalize the user experience and manage traffic within the parking lot. This will make our service more efficient and user-centered.

## User-Friendly Mobile App

The application to be developed will enable users to make reservations, access charging stations and directions.



Figure - 6





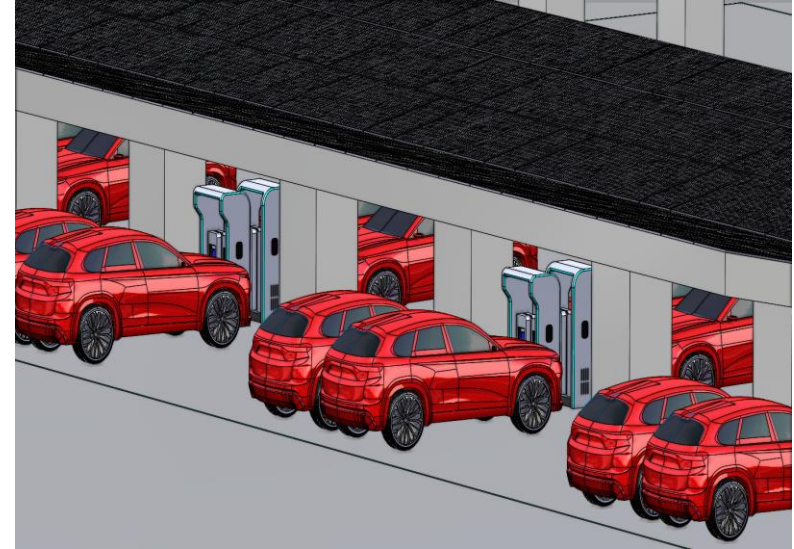
# PROJECT OUTLINE

## Energy Efficiency and Renewable Energy Sources

Our project aims to meet the energy needs of the parking lot with solar panels and energy storage systems. Ensuring energy efficiency and creating an environmentally friendly energy source is one of the cornerstones of our Project.

## Electric Vehicle Charging Infrastructure

One of the main goals of our project is to support electric vehicle owners by providing a fast, reliable and user-friendly charging experience.



# REQUIRED PARTNERSHIPS

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Within the scope of the project, project stakeholders are sought;

- Solar Panel or Solar Thin Film Producer
- Licensed Electric Vehicle Charger Unit Supplier Company
- LoRaWAN Communication



# CONTACT PERSON



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**Thank you ....**



**ArmaKontrol**  
Group Company