**Funding Application for Joint (Applied) Research Projects**

**“Kutatásmódszertan 2022”**

Title

Project partners, Universities

Eötvös Loránd Tudományegyetem CO

Universität Wien P1

Wiener Linien P2

Budapesti Közlekedési Központ P3

Epronex Építő Zrt. P4

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# executive summary of the proposal

Hubert

(maximum *3000 characters).*

*This summary will be sent to external peer reviewers during the selection process. It is recommended to pay special attention to the writing of this summary in order to encourage the acceptance of the approached external peer reviewers and to allow an appropriate evaluation of your proposal****.***

***Problem – Solution – Plan – Risk – Future Research***

***Efficient usage of the existing infrastructure for land transport in cities have been a problem for long time. It reduces throughput of the urban network nodes etc...***

***The***

# technical and scientific description of the project

For information only: maximum 10 pages for this section.

*The content of this section corresponds to the first evaluation criterion (technical and scientific quality of the project proposal).*

## the project topic and its practical relevance

Ádám

State the project topic, and specify how it is correlated with the thematic of the call.

Underline the practical relevance of the problem to be addressed and solved.

If applicable, describe **the project end-product(s),** present the **expected results,** with if possible appropriate evaluation and success criteria to determine the end-of-project results.

(maximum *3000 characters)*

Project success validation KPI would be the throughput increment of the crosses by controlling the traffic lights with our algorithms based on the real-time traffic load provided by the installed sensors.

## project contribution beyond the state of the art

MINDENKI saját workpackagek szerint

Hubert

Ádám

Szabolcs

Dávid

Laci

Summarize the state of the art and identify the bottlenecks.

Specify the project contribution to the progress beyond the state of the art.

Include the necessary bibliographic references in section 5.

(maximum *5000 characters).*

## project objectives and outcomes

Laci

Describe the project **objectives** and the **scientific and technical barriers** that will be lifted by carrying out the project.

State the project outcomes and their comparative contribution with respect to previous/preliminary achievements.

(maximum *3000 characters).*

## original and innovative contributions of the project

Dávid

(maximum *1500 characters).*

## inter-, multi-, or trans- disciplinary characteristics

dávid

Describe the disciplinary components of the project and their correlation within an inter-, multi-, or trans-disciplinary approach.

*Show how* ***the scientific disciplines are interlinked.***

(maximum *2000 characters)*

# impact and dissemination of the project results

For information only: maximum 5 pages for this section.

*The content of this section corresponds to the second evaluation criterion (impact and dissemination of the project results).*

## dissemination and exploitation of the project results

*Describe the main dissemination steps and the main dissemination vehicles used in the project.*

(maximum *1500 characters).*

Dávid

## possible applications with market potential

*Estimate the further exploitation of the results, including potential commercialization, beyond the project duration.*

(maximum *1500 characters)*

*Hubert*

## estimated improvements in the quality of life, with respect to current performance of products, technologies and/or services

Ádám

Present how the project outcome might contribute to the improvement in the quality of life, specifying the particular aspects directly related to the project contributions.

Assess the comparative advantages of the project outcomes with respect to the known performances of existing products, technologies and/or services.

(maximum *2500 characters)*

## project integration in the development strategy of partner companies

*Briefly state the correlation between the development strategies of partner companies and the topic/outcomes of the project.*

*Specify the partner companies’ needs specifically addressed within the project.*

(maximum *1500 characters)*

Szabolcs

# consortium description

*The content of this section corresponds to the third evaluation criterion (quality of the consortium).*

## project director

The project director should provide a short curriculum vitae (1/2 page maximum), containing:

* last name, first name, age, career path, current position
* professional experience in the topic of the project
* list of the five most significant achievements related to the project (e.g. peer-reviewed publications in scientific journals, national/international patents, prototypes, demonstrators, innovative technologies and services).
* *previous projects related to the present proposal*
* prizes, distinctions, membership in prestigious international professional associations

## consortium structure

Szabolcs

Briefly describe each partner (CO, P1-Pn) and provide the necessary elements to assess their qualification in the project ("why who does what"). These elements can be past achievements, indicators (publications, patents), why the partner is interested in the project, etc. (maximum 0.5 page per partner)

CO – Coordinating Organisation

P1-Pn – Partner Organisation

For all partners, indicate in a table (see below) other on-going projects having possible links with the proposed research work.

## partner research team leaders

Each partner research team leader should provide a short curriculum vitae (0.5 page maximum), containing:

* last name, first name, age, career path, current position
* professional experience in the topic of the project, related to the partner task.
* list of three most significant achievements related to the project (e.g. peer-reviewed publications in scientific journals, national/international patents, prototypes, demonstrators, innovative technologies and services).
* prizes, distinctions, membership in prestigious international professional associations

## partner team structure

*For each partner, indicate the research team structure (research positions, other than the team leader), in correlation with the allocated task(s).*

*For the key persons within the research team provide a short curriculum vitae (1/2 page maximum), having the same structure as the research team leader CV.*

## consortium complementarities and synergies between partners

Show the complementarities and added value of the collaboration between partners. The interdisciplinary and the openness to diverse collaboration must be justified in accordance with the project orientations.

# project management

For information only: maximum 5 pages for this section without tables and graphs.

*The content of this section corresponds to the fourth evaluation criterion (management, methodology, work plan, milestones and budget).*

## work plan, deliverables and load balancing

Describe “who does what”: present the scientific programme for all partners and justify the work programme breakdown into work packages (WPs) consistent with the objectives.

Describe the project WPs taking into account the contribution of each partner. For each WP describe:

* the goals and success indicators if any,
* the WP leader and the partners involved (this will be indicated in the tables below),
* the detailed work programme,
* the deliverables,
* the contributions of the partners (“who does what”),
* a description of the methods and technical choices and the way in which solutions will be brought,
* the risks and back-up solutions envisaged.

**Work package list**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Work package No[[1]](#footnote-1)** | **Work package title** | **Work package leader[[2]](#footnote-2)** | **Person/month[[3]](#footnote-3)** | **Start month[[4]](#footnote-4)** | **End month[[5]](#footnote-5)** |
| 1 | ­Szenzorok kiépítése, gyorsan, 3 hónap, csinálja a partner-vállalkozó, első hónaptól kezdve, már félig kész is van. A végén, amikor már kiválasztottuk a szenzorokat, akkor kell leírni ide, hogy mit építünk be. Időjárás állomás kiépítése / már létezik VAGY OMSZ partner. | CO  Dávid |  | 1 | 3 |
| 2 | Környezet felmérése, útburkolat, táblák, zebra, stb | Dávid |  | 1 | 3 |
| 3 | Mérések, adatgyűjtés  Ez mehet a kiépítés után teljesen a végéig: azért, mert nem biztos, hogy egy év alatt előjön minden időjárási körülmény | P2  László |  | 4 | 48 |
| 4 | Szimulátor készítés  Ezeken futtatjuk az detekteálási algoritmusokat  Azért, hogy ne kelljen megvárni az adatgyűjtés végét, algoritmusok teszteléséhez | P1 László |  | 1 | 12 |
| 5 | Monitoring/camera  Amikor szimluált adat, abból hogyan tudunk a controllinghoz szükséges információt előállítani | P4  László |  | 4 | 23 |
| 6 | ­Traffic monitoring using magnetic sensors | P3 Szabolcs |  | 12 | 24 |
| 7 | monitoring/acoustic | P1 Ádám |  | 3 | 24 |
| 8 | monitoring/laser | CO Hubert |  | 1 | 24 |
| 9 | Sensor FÚZIÓ integration  A szenzorok összehangolása  Ilyen szenzor kombinációt még senki nem használ, ez a kontribúció | Dávid |  | 25 | 30 |
| 10 | C/ meglévő gráf algoritmusok alkalmazásával a monitoring kimenetén hogy lehet kontrolling | Hubert |  | 31 | 36 |
| 11 | AI on **WP10** | Szabolcs |  | 37 | 48 |
| 12 | Szenzorok kimenetén további klasszifikáció: Villamos és egyéb járművek (mentő, rendőr) érzékelése | Ádám |  | 37 | 42 |
| 13 | M/ Integráció után algoritmusok finomítása változó időjárási körülményekhez / ŐSZ / TAVASZ | Közösen, mindenki saját szenzora alapján írja be az időjárás függőt |  | 31 | 48 |
| 14 | M/ Integráció után algoritmusok finomítása változó időjárási körülményekhez / TÉL | Közös, mint 13 |  | 31 | 48 |
| 15 | Éles teszt, felügyelten humán operátorral  Az edge case-eket keressük, ez alapján további finomítás az M és C-ben is | Hubert |  | 43 | 48 |
|  | **TOTAL** |  |  |  |  |

Using the table below, indicate the description for each work package, specifying the technical and scientific milestones, the bottlenecks or contingencies that could jeopardize the project outcome, and the planned project meetings.

**Work package description**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **WP no.** | **TEMPLATE** | | | | | |
| **WP title** | Complete database of meteorological parameters for solar radiation forecast and PV and thermosolar system dimensioning. | | | | | |
| **WP leader** | **CO** | | | | | |
| **Involved partners** | **CO** | **P1** | **P2** | **P3** | **P4** | **Total** |
| **Person-months** | **X pm** | **X pm** | **X pm** | **-** | **-** |  |
| **Start month** | **month 1** | | | | | |
| **End month** | **month 24** | | | | | |
| **Objectives** | | | | | | |
| **O1.** Development of a complete and updated database for meteorological parameters to be used for solar radiation forecasting | | | | | | |
| **Description of work and role of participants** | | | | | | |
| **T1.** Analysis of the necessary meteorological parameters for an accurate forecast of the solar radiation **(P1+P2)**  **T2.** Development of a complete and digitalized meteorological parameters database for solar radiation forecasting and model validation **(CO)**  **T3**. Constant update of the developed database **(CO)** | | | | | | |
| **Deliverables (brief description and month of delivery)** | | | | | | |
| **D1.** Complete meteorological parameters database for solar radiation forecast  **M1**. Complete meteorological database | | | | | | |

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| **WP no.** | **1** | | | | | |
| **WP title** | Sensor installation and setup | | | | | |
| **WP leader** | **CO** | | | | | |
| **Involved partners** | **CO** | **P1** | **P2** | **P3** | **P4** | **Total** |
| **Person-months** | **1 pm** | **-** | **-** | **-** | **3 pm** | **4 pm** |
| **Start month** | **month 1** | | | | | |
| **End month** | **month 3** | | | | | |
| **Objectives** | | | | | | |
| **O1.** Installation and setup of sensors on both locations for all crossroads involved | | | | | | |
| **Description of work and role of participants** | | | | | | |
| **T1.** Performing the installation and setup of sensors on all locations **(P4)**  **T2.** Organizing the sensor placement and verification of installation **(CO)** | | | | | | |
| **Deliverables (brief description and month of delivery)** | | | | | | |
| **D1.** Complete sensor setup on each location | | | | | | |

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| **WP no.** | **2** | | | | | |
| **WP title** | Initial survey of road sections | | | | | |
| **WP leader** | **CO** | | | | | |
| **Involved partners** | **CO** | **P1** | **P2** | **P3** | **P4** | **Total** |
| **Person-months** | **1 pm** | **6 pm** | **6 pm** | **-** | **-** | **13 pm** |
| **Start month** | **month 1** | | | | | |
| **End month** | **month 3** | | | | | |
| **Objectives** | | | | | | |
| **O1.**  Record the traffic related objects and surroundings of the road sections (pavement, lights, signs, and zebras) to use in further work packages as a baseline for evaluation and as a model | | | | | | |
| **Description of work and role of participants** | | | | | | |
| **T1.** Coordination of survey **(CO)**  **T2.** Performing the survey and creating the model of Budapest locations **(P1)**  **T3**. Performing the survey and creating the model of Budapest locations **(P2)** | | | | | | |
| **Deliverables (brief description and month of delivery)** | | | | | | |
| **D2.** Complete model of the road, its objects, and surroundings of Budapest locations  **D3.** Complete model of the road, its objects, and surroundings of Wien locations | | | | | | |

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| **WP no.** | **3** | | | | | |
| **WP title** | Complete database of meteorological parameters for solar radiation forecast and PV and thermosolar system dimensioning. | | | | | |
| **WP leader** | **CO** | | | | | |
| **Involved partners** | **CO** | **P1** | **P2** | **P3** | **P4** | **Total** |
| **Person-months** | **X pm** | **X pm** | **X pm** | **-** | **-** |  |
| **Start month** | **month 1** | | | | | |
| **End month** | **month 24** | | | | | |
| **Objectives** | | | | | | |
| **O1.** Development of a complete and updated database for meteorological parameters to be used for solar radiation forecasting | | | | | | |
| **Description of work and role of participants** | | | | | | |
| **T1.** Analysis of the necessary meteorological parameters for an accurate forecast of the solar radiation **(P1+P2)**  **T2.** Development of a complete and digitalized meteorological parameters database for solar radiation forecasting and model validation **(CO)**  **T3**. Constant update of the developed database **(CO)** | | | | | | |
| **Deliverables (brief description and month of delivery)** | | | | | | |
| **D1.** Complete meteorological parameters database for solar radiation forecast  **M1**. Complete meteorological database | | | | | | |

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| **WP no.** | **4** | | | | | |
| **WP title** | Complete database of meteorological parameters for solar radiation forecast and PV and thermosolar system dimensioning. | | | | | |
| **WP leader** | **CO** | | | | | |
| **Involved partners** | **CO** | **P1** | **P2** | **P3** | **P4** | **Total** |
| **Person-months** | **X pm** | **X pm** | **X pm** | **-** | **-** |  |
| **Start month** | **month 1** | | | | | |
| **End month** | **month 24** | | | | | |
| **Objectives** | | | | | | |
| **O1.** Development of a complete and updated database for meteorological parameters to be used for solar radiation forecasting | | | | | | |
| **Description of work and role of participants** | | | | | | |
| **T1.** Analysis of the necessary meteorological parameters for an accurate forecast of the solar radiation **(P1+P2)**  **T2.** Development of a complete and digitalized meteorological parameters database for solar radiation forecasting and model validation **(CO)**  **T3**. Constant update of the developed database **(CO)** | | | | | | |
| **Deliverables (brief description and month of delivery)** | | | | | | |
| **D1.** Complete meteorological parameters database for solar radiation forecast  **M1**. Complete meteorological database | | | | | | |

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| **WP no.** | **5** | | | | | |
| **WP title** | Complete database of meteorological parameters for solar radiation forecast and PV and thermosolar system dimensioning. | | | | | |
| **WP leader** | **CO** | | | | | |
| **Involved partners** | **CO** | **P1** | **P2** | **P3** | **P4** | **Total** |
| **Person-months** | **X pm** | **X pm** | **X pm** | **-** | **-** |  |
| **Start month** | **month 1** | | | | | |
| **End month** | **month 24** | | | | | |
| **Objectives** | | | | | | |
| **O1.** Development of a complete and updated database for meteorological parameters to be used for solar radiation forecasting | | | | | | |
| **Description of work and role of participants** | | | | | | |
| **T1.** Analysis of the necessary meteorological parameters for an accurate forecast of the solar radiation **(P1+P2)**  **T2.** Development of a complete and digitalized meteorological parameters database for solar radiation forecasting and model validation **(CO)**  **T3**. Constant update of the developed database **(CO)** | | | | | | |
| **Deliverables (brief description and month of delivery)** | | | | | | |
| **D1.** Complete meteorological parameters database for solar radiation forecast  **M1**. Complete meteorological database | | | | | | |

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| **WP no.** | **6** | | | | | |
| **WP title** | **Traffic monitoring using magnetic sensors.** | | | | | |
| **WP leader** | **CO** | | | | | |
| **Involved partners** | **CO** | **P1** | **P2** | **P3** | **P4** | **Total** |
| **Person-months** | **1 pm** | **2 pm** | **4 pm** | **-** | **-** | **7** |
| **Start month** | **month 12** | | | | | |
| **End month** | **month 24** | | | | | |
| **Objectives** | | | | | | |
| **O1.** Monitoring of vehicles participating in traffic, their classification according to their type and size, and the determination of their speed using magnetic sensors. | | | | | | |
| **Description of work and role of participants** | | | | | | |
| **T1.** Creation of a database to store simulated data generated by magnetic sensors. **(P1)**  **T2.** Building of the model used for the classification of different types of vehicles. **(CO)**  **T3.** Building of the model used for the speed determination of the vehicles. **(CO)**  **T4.** Implementation of the models. **(P2)** | | | | | | |
| **Deliverables (brief description and month of delivery)** | | | | | | |
| **D1.** A program package that can use the existing and continuously generated data from the magnetic sensors to   * count the number of vehicles passing through at a given point in a unit of time, * classify the passing vehicles, * determine the speed of the passing vehicles. | | | | | | |

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| **WP no.** | **7** | | | | | |
| **WP title** | Complete database of meteorological parameters for solar radiation forecast and PV and thermosolar system dimensioning. | | | | | |
| **WP leader** | **CO** | | | | | |
| **Involved partners** | **CO** | **P1** | **P2** | **P3** | **P4** | **Total** |
| **Person-months** | **X pm** | **X pm** | **X pm** | **-** | **-** |  |
| **Start month** | **month 1** | | | | | |
| **End month** | **month 24** | | | | | |
| **Objectives** | | | | | | |
| **O1.** Development of a complete and updated database for meteorological parameters to be used for solar radiation forecasting | | | | | | |
| **Description of work and role of participants** | | | | | | |
| **T1.** Analysis of the necessary meteorological parameters for an accurate forecast of the solar radiation **(P1+P2)**  **T2.** Development of a complete and digitalized meteorological parameters database for solar radiation forecasting and model validation **(CO)**  **T3**. Constant update of the developed database **(CO)** | | | | | | |
| **Deliverables (brief description and month of delivery)** | | | | | | |
| **D1.** Complete meteorological parameters database for solar radiation forecast  **M1**. Complete meteorological database | | | | | | |

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| **WP no.** | **8** | | | | | |
| **WP title** | Complete the installation of laser radars for traffic monitoring, data collection. | | | | | |
| **WP leader** | **CO** | | | | | |
| **Involved partners** | **CO** | **P1** | **P2** | **P3** | **P4** | **Total** |
| **Person-months** | **2 pm** | **10 pm** | **12 pm** | **-** | **-** |  |
| **Start month** | **month 1** | | | | | |
| **End month** | **month 24** | | | | | |
| **Objectives** | | | | | | |
| **O1.** Installation of laser radars at the beginning phase to start collecting traffic and vehicle information. | | | | | | |
| **Description of work and role of participants** | | | | | | |
| **T1.** Installation and verification of the sensors  **T2.** Database design, implementation, storage policy, GDPR, data collection **(CO)**  **T3**. Constant update of the developed database **(CO)** | | | | | | |
| **Deliverables (brief description and month of delivery)** | | | | | | |
| **D1.** Complete meteorological parameters database for solar radiation forecast  **M1**. Complete meteorological database | | | | | | |

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| **WP no.** | **9** | | | | | |
| **WP title** | Sensor FÚZIÓ integration  A szenzorok összehangolása  Ilyen szenzor kombinációt még senki nem használ, ez a kontribúció | | | | | |
| **WP leader** | **CO** | | | | | |
| **Involved partners** | **CO** | **P1** | **P2** | **P3** | **P4** | **Total** |
| **Person-months** | **X pm** | **X pm** | **X pm** | **-** | **-** |  |
| **Start month** | **month 25** | | | | | |
| **End month** | **month 30** | | | | | |
| **Objectives** | | | | | | |
| **O1.** Development of a complete and updated database for meteorological parameters to be used for solar radiation forecasting | | | | | | |
| **Description of work and role of participants** | | | | | | |
| **T1.** Analysis of the necessary meteorological parameters for an accurate forecast of the solar radiation **(P1+P2)**  **T2.** Development of a complete and digitalized meteorological parameters database for solar radiation forecasting and model validation **(CO)**  **T3**. Constant update of the developed database **(CO)** | | | | | | |
| **Deliverables (brief description and month of delivery)** | | | | | | |
| **D1.** Complete meteorological parameters database for solar radiation forecast  **M1**. Complete meteorological database | | | | | | |

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| **WP no.** | **10** | | | | | |
| **WP title** | meglévő gráf algoritmusok alkalmazásával a monitoring kimenetén hogy lehet kontrolling | | | | | |
| **WP leader** | **CO** | | | | | |
| **Involved partners** | **CO** | **P1** | **P2** | **P3** | **P4** | **Total** |
| **Person-months** | **X pm** | **X pm** | **X pm** | **-** | **-** |  |
| **Start month** | **month 31** | | | | | |
| **End month** | **month 36** | | | | | |
| **Objectives** | | | | | | |
| **O1.** Development of a complete and updated database for meteorological parameters to be used for solar radiation forecasting | | | | | | |
| **Description of work and role of participants** | | | | | | |
| **T1.** Analysis of the necessary meteorological parameters for an accurate forecast of the solar radiation **(P1+P2)**  **T2.** Development of a complete and digitalized meteorological parameters database for solar radiation forecasting and model validation **(CO)**  **T3**. Constant update of the developed database **(CO)** | | | | | | |
| **Deliverables (brief description and month of delivery)** | | | | | | |
| **D1.** Complete meteorological parameters database for solar radiation forecast  **M1**. Complete meteorological database | | | | | | |

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| **WP no.** | **11** | | | | | |
| **WP title** | AI on **WP10** | | | | | |
| **WP leader** | **CO** | | | | | |
| **Involved partners** | **CO** | **P1** | **P2** | **P3** | **P4** | **Total** |
| **Person-months** | **1 pm** | **2 pm** | **-** | **-** | **-** | **3** |
| **Start month** | **month 37** | | | | | |
| **End month** | **month 48** | | | | | |
| **Objectives** | | | | | | |
| **O1.** Extension of **WP10** with a neural network taught by reinforcement learning to increase the throughput of given points in traffic. | | | | | | |
| **Description of work and role of participants** | | | | | | |
| **T1.** Building of the neural network model. **(P1)**  **T2.** Training of the model. **(P1)** | | | | | | |
| **Deliverables (brief description and month of delivery)** | | | | | | |
| **D1.** The model and parameters of the neural network used as an extension for the traffic controlling algorithm. | | | | | | |

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| **WP no.** | **12** | | | | | |
| **WP title** | Complete database of meteorological parameters for solar radiation forecast and PV and thermosolar system dimensioning. | | | | | |
| **WP leader** | **CO** | | | | | |
| **Involved partners** | **CO** | **P1** | **P2** | **P3** | **P4** | **Total** |
| **Person-months** | **X pm** | **X pm** | **X pm** | **-** | **-** |  |
| **Start month** | **month 1** | | | | | |
| **End month** | **month 24** | | | | | |
| **Objectives** | | | | | | |
| **O1.** Development of a complete and updated database for meteorological parameters to be used for solar radiation forecasting | | | | | | |
| **Description of work and role of participants** | | | | | | |
| **T1.** Analysis of the necessary meteorological parameters for an accurate forecast of the solar radiation **(P1+P2)**  **T2.** Development of a complete and digitalized meteorological parameters database for solar radiation forecasting and model validation **(CO)**  **T3**. Constant update of the developed database **(CO)** | | | | | | |
| **Deliverables (brief description and month of delivery)** | | | | | | |
| **D1.** Complete meteorological parameters database for solar radiation forecast  **M1**. Complete meteorological database | | | | | | |

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| **WP no.** | **13** | | | | | |
| **WP title** | M/ Integráció után algoritmusok finomítása változó időjárási körülményekhez / TÉL | | | | | |
| **WP leader** | **CO** | | | | | |
| **Involved partners** | **CO** | **P1** | **P2** | **P3** | **P4** | **Total** |
| **Person-months** | **X pm** | **X pm** | **X pm** | **-** | **-** |  |
| **Start month** | **month 31** | | | | | |
| **End month** | **month 48** | | | | | |
| **Objectives** | | | | | | |
| **O1.** Development of a complete and updated database for meteorological parameters to be used for solar radiation forecasting | | | | | | |
| **Description of work and role of participants** | | | | | | |
| **T1.** Analysis of the necessary meteorological parameters for an accurate forecast of the solar radiation **(P1+P2)**  **T2.** Development of a complete and digitalized meteorological parameters database for solar radiation forecasting and model validation **(CO)**  **T3**. Constant update of the developed database **(CO)** | | | | | | |
| **Deliverables (brief description and month of delivery)** | | | | | | |
| **D1.** Complete meteorological parameters database for solar radiation forecast  **M1**. Complete meteorological database | | | | | | |

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| **WP no.** | **14** | | | | | |
| **WP title** | Complete database of meteorological parameters for solar radiation forecast and PV and thermosolar system dimensioning. | | | | | |
| **WP leader** | **CO** | | | | | |
| **Involved partners** | **CO** | **P1** | **P2** | **P3** | **P4** | **Total** |
| **Person-months** | **X pm** | **X pm** | **X pm** | **-** | **-** |  |
| **Start month** | **month 1** | | | | | |
| **End month** | **month 24** | | | | | |
| **Objectives** | | | | | | |
| **O1.** Development of a complete and updated database for meteorological parameters to be used for solar radiation forecasting | | | | | | |
| **Description of work and role of participants** | | | | | | |
| **T1.** Analysis of the necessary meteorological parameters for an accurate forecast of the solar radiation **(P1+P2)**  **T2.** Development of a complete and digitalized meteorological parameters database for solar radiation forecasting and model validation **(CO)**  **T3**. Constant update of the developed database **(CO)** | | | | | | |
| **Deliverables (brief description and month of delivery)** | | | | | | |
| **D1.** Complete meteorological parameters database for solar radiation forecast  **M1**. Complete meteorological database | | | | | | |

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| **WP no.** | **15** | | | | | |
| **WP title** | Éles teszt, felügyelten humán operátorral  Az edge case-eket keressük, ez alapján további finomítás az M és C-ben is | | | | | |
| **WP leader** | **CO** | | | | | |
| **Involved partners** | **CO** | **P1** | **P2** | **P3** | **P4** | **Total** |
| **Person-months** | **X pm** | **X pm** | **X pm** | **-** | **-** |  |
| **Start month** | **month 43** | | | | | |
| **End month** | **month 48** | | | | | |
| **Objectives** | | | | | | |
| **O1.** Development of a complete and updated database for meteorological parameters to be used for solar radiation forecasting | | | | | | |
| **Description of work and role of participants** | | | | | | |
| **T1.** Analysis of the necessary meteorological parameters for an accurate forecast of the solar radiation **(P1+P2)**  **T2.** Development of a complete and digitalized meteorological parameters database for solar radiation forecasting and model validation **(CO)**  **T3**. Constant update of the developed database **(CO)** | | | | | | |
| **Deliverables (brief description and month of delivery)** | | | | | | |
| **D1.** Complete meteorological parameters database for solar radiation forecast  **M1**. Complete meteorological database | | | | | | |

A table summarizing all the project deliverables will be provided below.

**List of deliverables**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Del. no. [[6]](#footnote-6)** | **Deliverable name** | **WP no.** | **WP leader** | **Nature of deliverable[[7]](#footnote-7)** | **Dissemination  level [[8]](#footnote-8)** | **Delivery date[[9]](#footnote-9)** |
| 1 | **D1.** Complete sensor setup on each location and crossroad | 1 | CO | IT | CO | 10 |
| 2 | **D2.** Report on performance testing results of the most performant solar irradiation forecasting models | 2 | P2 | IS | CO | 10 |
| 3 | **D3.** New, improved forecasting model for solar radiation forecast | 2 | P2 | IT | CO | 11 |
| 4 | **D4**. Software for solar radiation forecast on long and short term | 2 | P2 | IT | CO | 12 |
| 5 | **D5.** Algorithm for estimation of thermosolar systemsenergy output on long and short term based son solar radiation forecasting | 3 | P1 | IT | CO | 12 |
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## coordination and task schedule

*Ádám*

*Present the task schedule and the corresponding sequencing using a Gantt chart.*

## available research infrastructure, and its upgrade/development

MINDENKI saját szenzorokat írja be

*List the main research equipment (with a brief description) and infrastructure available at each partner, related to the project topic and specific tasks.*

*Specify if and how the infrastructure will be upgraded and/or developed during the project lifetime.*

## Manpower allocation

*Using the table below, specify the allocation of person-months for the research team members, related to the complexity of their tasks.*

|  |
| --- |
| **List of research team members** |
|  | **First name and last name\*** | **Position in the project** | **Person-month\*\*** | **Personnel cost RON** |
| **Coordinator (CO)** | Pp1 | Dr.,  Project director |  |  |
| Pp2 | Dr.(<5 years)  Researcher |  |  |
| Pp3 | Dr.  Researcher |  |  |
| Pp4 | Dr.  Researcher |  |  |
| Vacant | Dr. Researcher |  |  |
| **Partner 1** | Pp5 | Prof. Dr.  P1. Responsible |  |  |
|  | Dr. Researcher |  |  |
|  | MsC  Researcher |  |  |
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| **Partner 2** |  |  |  |  |
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| **Partner 3** |  |  |  |  |
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| **Partner 4** |  |  |  |  |
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| **Total** |  |  |

\* Indicate also the non-permanent staff (vacant positions) to hire – doctoral and post-doctoral   
 researchers, fixed-term contract staff, interns, etc.

\*\* To be indicated with respect to the total project duration

Person months/partner:

* ANM:69.5
* UPB:60.5
* UBB:60,75
* Evoline: 104.5
* IPA:30.3

<De introdus in tabel conform modelului IPA + completare la WP>

## project budget and partners share

*Present the overall project budget, according to the eligible costs structure, and budget breakdown by category of expenses.*

*Specify the budget split among partners from both funding sources (public budget and own budget).*

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| --- | --- | --- | --- | --- | --- | --- |
| **Budget breakdown / destination (RON)** | | | | | | |
|  | | **Personnel costs** | **Logistics\*** | **Travel** | **Indirect costs** | **Total** |
| **Coordinator (CO)** | **Public Budget** |  |  |  |  |  |
| **Own Budget** | 0 | 0 | 0 | 0 | 0 |
| **Partner 1** | **Public Budget** | 1000 |  |  |  |  |
| **Own Budget** | 2000 |  |  |  |  |
| **Partner 2** | **Public Budget** | 3000 | 4000 |  |  |  |
| **Own Budget** |  |  |  |  |  |
| **Partner 3** | **Public Budget** |  |  |  |  |  |
| **Own Budget** |  |  |  |  |  |
| **Partner 4** | **Public Budget** |  |  |  |  |  |
| **Own Budget** |  |  |  |  |  |
| **Total** | |  |  |  |  | **800.000 RON** |

\* Subcontracting cost will be no more than 15% of the project public budget.

***Mention/detail subcontracting cost here***.

# references

Include the list of bibliographic references used in the “State of the art" section and the partners' bibliographic references related to the project.

1. Barillec R, Ingram B, Cornford D, Csató L (2011) Projected sequential Gaussian processes: a C++ tool for interpolation of heterogeneous data sets, Computers and Geosciences, 37/3, pp. 295--309 (IF 1.142).

1. Work package number: WP 1 – WP n. [↑](#footnote-ref-1)
2. Number of the partner leading the work in the WP [↑](#footnote-ref-2)
3. The total number of person-months allocated to each work package. [↑](#footnote-ref-3)
4. Relative start date for the work in the specific work packages, month 1 marking the start date of the project, and all other start dates being relative to this start date. [↑](#footnote-ref-4)
5. Relative end date, month 1 marking the start date of the project, and all end dates being relative to this start date. [↑](#footnote-ref-5)
6. Deliverable numbers in order of delivery dates: D1 – Dn [↑](#footnote-ref-6)
7. Please indicate the nature of the deliverable using one of the following codes:

   **EM =** Experimental Model**; FM=** Functional Model**;** **P** = Prototype, **D** = Demonstrator/ Demonstrative model, **IT** = Innovative Technology, **IS** = Innovative Services. [↑](#footnote-ref-7)
8. Please indicate the dissemination level using one of the following codes:

   **PU** = Public

   **PP** = Restricted to other programme participants (including the Contracting Authority)

   **RE** = Restricted to a group specified by the consortium (including the Contracting Authority)

   **CO** = Confidential, only for members of the consortium (including the Contracting Authority) [↑](#footnote-ref-8)
9. Month in which the deliverables will be available. Month 1 marking the start date of the project, and all delivery dates being relative to this start date. [↑](#footnote-ref-9)