

科技项目合作协议书

Agreement of Scientific and Technological Cooperation

项目名称：设施蔬菜植物工厂化高效智能精细生产与智慧管控关键技术的联合研发

Project Name: **Joint research and development of key technologies for efficient intelligent fine production and intelligent management and control of facility vegetable plants**

项目申报单位：

Participant Organization:

甲方：扬州木森机电工程有限公司

Party A: Yangzhou Musen mechanical and Electrical Engineering Co., Ltd

通讯地址：扬州市经济开发区朴席镇工业规划区，225012

Address: Industrial planning area, Puxi Town, Economic Development Zone, Yangzhou City, Jiangsu Province, 225012

项目负责人：

Project Leader

联系电话：

Tel:

mail:

乙方: 4JTech s.r.o.

Party B: 4JTech s.r.o.

通讯地址：Ringhofferova 115/1, 155 21, Prague 5, Czech Republic

Address: Ringhofferova 115/1, 155 21, Prague 5, Czech Republic

项目负责人：

Project Leader:

联系电话：

传真:

Tel:

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丙方：扬州大学

Party C: Yangzhou University

通讯地址：江苏省扬州市邗江区四望亭路 180 号, 225009

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Project Leader: [REDACTED]

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Tel: +[REDACTED] Fax:+[REDACTED]

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丁方：南波西米亚大学

Party D: University of South Bohemia in České Budějovice

通讯地址：Branisovska 1645/31a, 370 05 Ceske Budejovice

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戊方：2050farm s.r.o.

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项目负责人：:[REDACTED]

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甲乙丙丁戊五方经友好沟通，就设施蔬菜植物工厂化高效智能精细生产与智慧管控关键技术的联合研发开展科技合作，并将面向全球市场，通过研发新产品，提高植物工厂生产的技术水平。现就合作开发达成一致，签署本协议，以资共同遵守。

Through friendly communication, fiver parties will carry out scientific and technological cooperation on the joint research and development of key technologies for efficient intelligent fine production and intelligent management and control of facility vegetable plants, and will face the global market to improve the level of intelligent, efficient and fine production technology of facility vegetable plants. Now we have reached an agreement on cooperative development and signed this Agreement for mutual compliance.

一. 合作内容

I.Cooperation Content

1、本项目以中国和捷克地方特色设施蔬菜为主要研究对象，围绕植物工厂化精细生产技术需求，针对目前影响到两国设施蔬菜产业发展受限的技术瓶颈问题，从穴盘苗快速精准识别与高速低损移栽、生理信息感知与智能监测、光环境精细化调控、水肥营养精准控制、智能高效低损采收、生产管理信息集成与智慧管控等关键技术出发，开展设施蔬菜植物工厂化高效智能精细生产与智慧管控技术创新与示范研究，大幅提升设施蔬菜自动化、智能化、成套化生产水平，推动两国设施蔬菜产业由规模增长向质量提升转变。

1. Research Goal: This project takes the local characteristic facility vegetables of China and Czech as the main research object, focusing on the technical requirements of plant factory fine production, and aiming at the technical bottleneck problems that currently affect the development of facility vegetable industry in the two countries, starting from rapid and accurate identification of plug seedlings and high-speed and low loss transplanting, physiological information perception and intelligent monitoring, fine regulation of light environment, accurate control of water and fertilizer nutrition, intelligent, high-efficiency and low loss harvesting, production management information integration and intelligent management and control and other key technologies, and the innovation and demonstration research on high-efficiency, intelligent and fine production and intelligent management and control technology of facility vegetable factory will be carried out, and this study will greatly improve the automation, intelligent and complete set production level of facility vegetable, and promote the transformation of facility vegetable industry from scale growth to quality improvement in the two countries.

2、技术内容

- (1) 植物工厂化设施蔬菜穴盘苗快速精准识别与高速低损移栽技术研究
- (2) 植物工厂化设施蔬菜生理信息感知与智能监测技术研发
- (3) 基于多源信息融合的设施蔬菜光环境精细化调控技术研究
- (4) 基于作物生理信息反馈的水肥营养精准控制技术研究
- (5) 植物工厂环境下设施蔬菜智能高效低损采收关键技术研究
- (6) 设施蔬菜植物工厂化生产管理信息集成与智慧管控技术研究

2. Technical Content

- (1) Research on rapid and accurate identification and high speed and low loss transplanting technology of vegetable plug seedlings in factory facilities;
- (2) Research and development of vegetable physiological information perception;
- (3) Research on fine regulation technology of facility vegetable light environment based on multi-source information fusion;
- (4) Research on precise control technology based on crop physiological information feedback and intelligent monitoring technology in plant factory facilities;
- (5) Research on key technologies of intelligent, efficient and low loss harvesting of facility vegetables in plant factory environment;
- (6) Research on the integration of management information and intelligent management technology of plant factory production of vegetable and plant;
- (7) Research and development of computer models for prediction of: a) distribution of carbon dioxide concentration in the factory environment and b) lighting conditions in the factory in dependence on the arrangement of light sources.

3、合作方式：分工合作，共同开发，利益共享

3. Cooperation mode: Individual contribution, collaborative development and benefit-sharing.

4、合作期限：2022年1月-2024年12月

4. Cooperation Duration: January 2022 – December 2024

5、利益分配

5. Profit Distribution

五方负责各自前期投入的研发经费，并向各自国家的科技主管部门申请科技经费资助。

The five parties are responsible for the R&D expenditures of their respective investments, and apply to the science and technology authorities of their respective countries for funding for science and technology.

二、五方分工情况

II. Individual contribution

1、甲方

1. Party A

扬州木森机电工程有限公司主要负责植物工厂化设施蔬菜穴盘苗快速精准识别与高速低损移栽技术研究，开发设施蔬菜植物工厂化生产管理信息集成与智慧管控系统。

Yangzhou Musen mechanical and Electrical Engineering Co., Ltd. is mainly responsible for the rapid and accurate identification and high-speed and low loss transplanting technology of vegetable plug seedlings in factory facilities, and the development of management information integration and intelligent management and control system for factory production of vegetable facilities.

2、乙方

2. Party B

4JTech s.r.o.主要开发基于作物生理信息反馈的精准控制技术和植物工厂设施智能监控技术。

4JTech s.r.o. is mainly responsible for the precise control technology based on crop physiological information feedback and intelligent monitoring technology in plant factory facilities.

3、丙方

3. Party C

扬州大学主要负责基于多源信息融合的设施蔬菜光环境精细化调控技术研究和植物工厂环境下设施蔬菜智能高效低损采收技术研究。

Yangzhou University is mainly responsible for the research on fine regulation technology of facility vegetable light environment based on multi-source information fusion and key technologies of intelligent, efficient and low loss harvesting of facility vegetables in plant factory environment.

4、丁方

4. Party D

南波西米亚大学主要负责开发用于预测以下各项的计算机模型: a) 环境中二氧化碳浓度的分布和 b) 工厂中依赖于光源布置的照明条件。

The University of South Bohemia in České Budějovice is responsible for the research and development of computer models for prediction of: a) distribution of carbon dioxide concentration in the environment and b) lighting conditions in the factory in dependence on the arrangement of light sources.

4. Party E

2050farm s. r. o. 主要负责蔬菜生理信息感知的研发和应用工作。
2050farm s.r.o. is mainly responsible for the research and development of vegetable physiological information perception.

三、五方权利、义务与责任

III. Rights, Obligations and Responsibilities of the Five Parties

1、五方应按照合作方案开展项目研究，并保证研究活动的合法性。

1. The five parties shall not only develop project research based on the agreement, but also ensure the legitimacy of research activities.

2、五方需定期以互访、科研报告等形式交流工作进展情况，并提交书面材料。

2. The five parties need to exchange research information on a regular basis via site visits and progress reports with written documents.

3、在五方合作过程中,任何一方无权干涉其他方的内部管理。

3. Any party has no rights to interfere internal management of other parties in the course of collaborative research.

4、五方应以诚信为本，互相交流和切磋业务动作状况，以便相互促进。

4. The five parties shall honestly and mutually exchange relevant research information to assist one another.

四、研究费用使用。

IV. Use of Research Funds

研究经费需按照各个国家项目资金管理规定使用，不得用于项目无关事项。具体经费使用按共同建议书的经费进行投入和使用。

Research funds shall be strictly used in accordance with the regulations issued by the funding agency, and shall not be used for other unrelated projects. The specific use of funds is invested and used in

accordance with the provisions of the Common Proposal. The information and conditions stated in the project documentation of the respective country (TACR for the Parties B, D and E) are decisive for the implementation of the project by the given party and take precedence over the provisions of this contract.

五、成果分配

V.Achievement Distribution

合作前五方已有的知识产权归各自所有，合作过程中新产生的所有技术秘密及专利归研发方所有。

The existing intelligent properties prior to this cooperative project belong to individual parties. But all new technical secrets and patents generated during the cooperation process are owned by the R&D party.

(1) 论文发表：五方可以单独将本方完成部分的研究成果以论文形式单独发表；联合发表论文时，完成单位和论文作者排名将按照实际贡献大小排序方式进行；

(1) Publications: The five parties can separately publish the research results of the completed part of the party in the form of papers; when jointly publishing the papers, the rankings of the completed units and the authors of the papers will be sorted according to the actual contribution size;

(2) 合作各方根据在合作期间所获取的成果，包括论文、专著、专利以及鉴定、成果报道等可根据需要注明研发合作项目来源。

(2) The R&D Cooperative Project shall be acknowledged in all the papers, monographs, patents, certificates and reports generated from this project.

六、保密条款

VI.Confidentiality

1.五方对项目所涉及的内容及合作过程中知晓的其他方的重要信息负有保密义务。未经另一方同意，不得将上述内容向其他任何第五方透漏。

1. The five parties shall have the obligation to keep confidential the contents of the project and the important information of other parties known in the course of cooperation. The above content may not be disclosed to any other fifth party without the consent of the other party.

2.五方所提供给对方的一切资料，专项技术和对项目的策划设计要严格保密，并只能在合作方的业务范围内使用。

2. All the information provided by the five parties to each other, special technology and the planning and design of the project shall be strictly confidential and shall only be used within the business scope of the partner.

3. 凡涉及由五方提供与项目资金有关的所有材料，包括但不限于资本营运计划，财资情报、客户名单、经营决策、项目设计、资本融资、技术数据、项目商业计划书等均属保密内容。

3. All project-related information provided by the five parties belongs to confidential information, which includes but not limited to capital operation, financial information, customer information, business decision, project design, capital investment, technical data, business plan and so on.

4. 凡未经五方书面同意而直接、间接、口头或者书面的形式向第五方提供涉及保密内容的行为均属泄密。

4. Without the written agreement by all the five parties, release of any project information by any single party, by direct, indirect or written form, to other parties will be regarded as divulgence.

5. ~~保密条款和出版指南涉及项目的技术部分和项目合作伙伴的内部信息。~~

~~项目方可以自由宣传项目参与，而无需发布技术细节或机密信息。~~

5. The secrecy provisions and publication guidelines concern only the technical part of the project and internal information about the project partners.

The project parties are free to publicize project participation and other general information about the project without publishing technical details or confidential information.

七、违约责任及风险承担

VII. Contract violation and risk responsibility

1、任何一方违反本协议约定，导致项目合作无法进行的，其他方有权变更、解除协议，违约方应承担由此给对方造成的一切损失；

1. One party has the right to alter or terminate this agreement if the other parties fail to comply with. The violation party shall bear all the losses.

2、项目合作期间中如遇不可抗拒的因素导致协议不能履行的，五方各自承担自己的损失，均不承担违约责任。五方应尽快通知对方以将损失控制在最小范围并共同协商变更或者解除本协议；

2. If this agreement cannot be fulfilled caused by irresistible factors during the project, each party shall undertake its own loss and does not bear the liability for contract violation. Each party shall

notify others at its earliest time in order to control the loss to the minimum level, find an alternative solution, and even terminate this agreement.

3、除上述情形外，任何一方欲变更、解除本协议，必须提前 30 日以书面形式通知另一方；

3. Except the above circumstances, each single party shall send written notice to the other parties 30 days in advance if any alteration is required.

八、五方其他特殊约定

VIII. Other Special Agreements

1、在研究过程中如因一方的技术导致侵犯他人专利或相关知识产权所造成的损失由过错方自行承担。

1. If a party infringes others' patents and intellectual property rights, the party shall bear all the losses.

2、本合同以英文书写并翻译成中文。语言版本之间如有差异，以英文版本为准。

2. This contract is written in English and translated into Chinese. In case of differences between language versions, the English version shall prevail.

九、争议的解决办法

IX. Dispute Solution

如果在履行本合同的过程中发生任何争议，由五方协商友好解决。

In case a party fails to resolve the dispute occurring during the project, it shall be settled through friendly negotiation by the five parties.

十、其他

X. Other

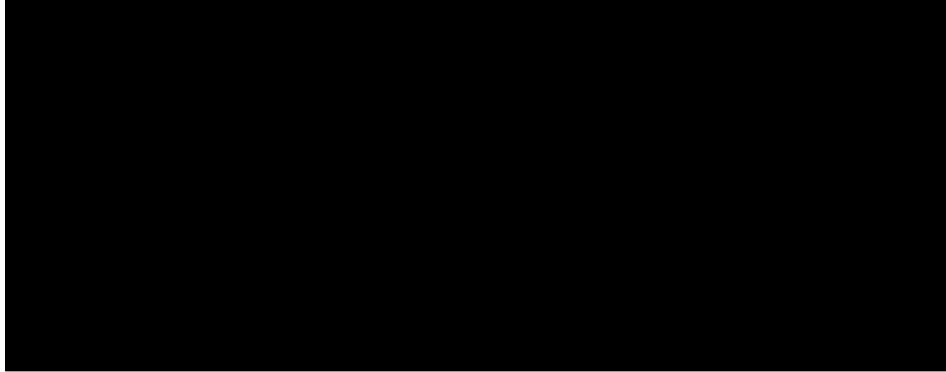
1、本协议未尽事宜可由五方协商签订书面补充协议，补充协议同本协议具有同等法律效力。

1. Matters not covered in this Agreement may be negotiated by five parties to sign a written supplemental agreement, which has the same legal effect as this Agreement;

2、本协议经五方签字盖章后生效，一式五份，五方各执一份，具有同等法律效力。

2. This Agreement shall become effective after being signed and sealed by five parties, in five copies, each party shall hold the same copy and have the same legal effect.

甲方：（签章）



日期： 2021. 7.6

Date:

乙方：（签章）

Part B: 4JTech

（Signature&Seal）

Legal Representative:

日期：

Date: 7/7/21



日期: 2021.7.6

Date:

丁方：（签章）

Part D: University of South Bohemia in České Budějovice

（Signature&Seal）

代表人：

Legal Representative: prof. PhDr. Bohumil Jiroušek, Dr.

日期：

Date:

30 -06- 2021

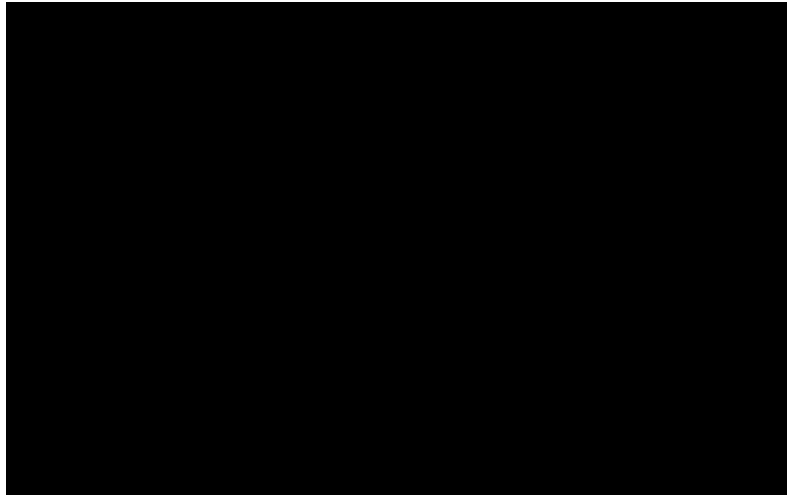
戊方：（签章）

Part E: 2050FARM

（Signature&Seal）

代表人：

Legal Representative:



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日期：

Date: 07/07/2021