

# Socialization and education on designing an automatic chili plant watering system in Kota Pari Village

Darmeli Nasution<sup>1\*</sup>, Indri Sulistianingsih<sup>2</sup>, Ahmad Akbar<sup>3</sup>, Ahmad Fernando<sup>4</sup>

<sup>1,2,3,4</sup>Universitas Pembangunan Panca Budi, Indonesia

---

## ABSTRACT

---

This service activity aims to provide outreach and education to the people of Kota Pari Village about the design of an automatic chili plant watering system. This system was designed with the aim of increasing agricultural efficiency and productivity, especially in chili cultivation. Through this activity, it is hoped that the public can understand and apply the concepts and working principles of automatic watering systems in agriculture. The activity began with outreach to the public about the benefits and working principles of automatic watering systems as well as the potential for increasing agricultural yields that can be achieved through the use of this technology. Next, practical education was carried out regarding the installation and use of an automatic watering system for chili plants. Participants will be given a step-by-step guide in installing and operating an automatic watering system. Apart from that, this activity also involves direct assistance and monitoring of the implementation of the automatic watering system in the community's chili plants. The service team will assist in overcoming obstacles that may arise and provide direction and suggestions in using the system. Through this outreach and education activity, it is hoped that the people of Kota Pari Village can utilize and adopt automatic watering system technology to increase their agricultural yields. With this system, it is hoped that the efficiency of water use and labor can increase, so that the productivity and quality of chili plants can be improved.

**Keywords:** socialization, education, automatic watering system, chili plants, agriculture

---

Corresponding Author:  
Darmeli Nasution,  
Department of Computer Science, Universitas Pembangunan Panca Budi,  
St. Gatot Subroto KM, 4.5, Medan, North Sumatera, Indonesia.  
Email: darmelinasution@gmail.com



---

## 1. INTRODUCTION

The situation analysis in Kota Pari Village in the context of chili farming aims to understand the conditions and factors that influence chili farming activities in the village. The following is a description of the situation analysis in Kota Pari Village, Natural Resource Potential: Kota Pari Village has good natural resource potential for chili farming. Fertile soil, a suitable climate and adequate water availability are supporting factors in cultivating chili plants[1]. Condition of Chili Farming: Chili farming in Kota Pari Village has become one of the main sectors in the village economy. Many farmers are involved in chili cultivation as their main livelihood. However, there are still several obstacles such as limited use of technology and lack of understanding of modern agricultural practices. Farmers' Knowledge and Skills: Farmers' knowledge and skills in chili cultivation vary. Some farmers already have good knowledge and experience, while others may need education and training to improve their skills. Agricultural Infrastructure: Agricultural supporting infrastructure such as irrigation, distribution networks and transportation access are important factors in the success of chili cultivation. Evaluation of existing infrastructure can help identify potential improvements or necessary developments. Markets and Marketing: Market availability and access to marketing channels are factors that influence the sustainability of chili farming[2]. The situation analysis should include information about local market potential, demand, and price trends for chilies. Regulations and Policies: Government policies related to agriculture and natural resource management regulations also play a role in chili farming activities in Kota Pari Village. Investigating existing regulations and policies can help understand constraints or opportunities that may affect agricultural activities[3].



The aim of the service activity under the title "Socialization and Education on the Design of an Automatic Chili Plant Watering System in Kota Pari Village" is as follows, Providing Knowledge and Education: The main aim of this activity is to provide knowledge and education to farmers and the people of Kota Pari Village about the design of a plant watering system automatic chili. This aims to increase their understanding of the concept, benefits and how to use this system in chili cultivation. Increasing Efficiency and Productivity: This service activity aims to increase efficiency and productivity in chili cultivation through the implementation of an automatic watering system. By adopting this technology, it is hoped that farmers can optimize water use, reduce manual labor and increase crop yields. Introducing Technological Innovation: Another goal is to introduce technological innovation in the agricultural sector to farmers and the people of Kota Pari Village. Through the introduction of automatic watering systems, it is hoped that they will be able to recognize and adopt modern technology that can increase the effectiveness and efficiency of agricultural businesses. Encouraging Community Sustainability and Empowerment: This service activity also aims to encourage community sustainability and empowerment in the agricultural sector[4]. By providing new knowledge and skills to farmers, they can develop their abilities in managing chili cultivation and face challenges that may arise in the future. Stimulating Local Economic Growth: Through the implementation of an automatic watering system, it is hoped that chili farming activities in Kota Pari Village can develop better[5]. This can encourage local economic growth, increase farmer incomes, and create new jobs in the agricultural sector.

Partner problems in the context of the activity "Socialization and Education on the Design of an Automatic Chili Plant Watering System in Kota Pari Village" may include the following, Limited Knowledge: Farmers and the people of Kota Pari Village may have limited knowledge about modern technology and innovation in cultivating chili plants. They may not be familiar with the concept and benefits of an automatic chili watering system, and may not understand how to use and apply it. Conventional Watering Practices: Farmers often still use conventional watering practices that rely on manual labor and traditional methods. This can lead to waste of water, time and energy, as well as a lack of effective control over plant water requirements. Limited Resources: Farmers may experience limited resources such as water, labor, and time. This limitation can affect productivity and efficiency in chili cultivation, as well as hinder technological progress that can increase crop yields. Risk of Disease and Pests: Chili plants are susceptible to disease and pest attacks which can damage plants and reduce yields. Improper watering practices can exacerbate this problem, as excessive moisture can promote the development of diseases and pests[6]. Agricultural Business Sustainability: Farmers may face challenges in maintaining the sustainability of their agricultural businesses[7]. Factors such as weather fluctuations, climate changes and market changes can affect the productivity and success of chili cultivation.

## 2. RESEARCH METHODOLOGY

In the activity "Socialization and Education on the Design of an Automatic Chili Plant Watering System in Kota Pari Village", several approach methods that can be used include:

1. Socialization and Presentation: Through socialization sessions and presentations, the service team can convey information regarding the concept, benefits and how to use the automatic chili plant watering system. This aims to provide partners with an initial understanding of the technology that will be introduced.
2. Practical Demonstration: This method involves a practical demonstration directly in the field, where the service team will show how the automatic chili plant watering system functions. This demonstration will provide Partners with a visual understanding and direct experience of how the system works and the benefits.
3. Training and Guidance: After socialization and demonstration, training and guidance is provided to Partners to learn in more depth about the use of the automatic chili plant watering system. Training includes practical instruction, maintenance techniques, and handling common problems that may arise during use of the system.
4. Assistance and Monitoring: The service team will provide regular assistance and monitoring to ensure that the automatic chili plant watering system can be implemented properly by Partners. This assistance aims to provide assistance and solve problems in using the system.
5. Evaluation and Feedback: After the system implementation period, an evaluation is carried out to measure the effectiveness and success of implementation. Partners will provide feedback regarding their experience in using the automatic chili plant watering system, as well as suggestions and input for improvements if necessary.

This approach method is designed to provide comprehensive education, training and support to Partners in adopting and implementing an automatic chili plant watering system properly and effectively.



Figure 1. Methods of Applying Science and Technology

### 3. RESEARCH RESULTS

#### 3.1. Result

The results of community service activities in Kota Pari Village in implementing an automatic chili watering system can include the following things:

1. **Implementation of an Automatic Chili Plant Watering System:** Through community service activities, an automatic chili plant watering system was successfully implemented in Kota Pari Village. This system involves the use of automation technology to provide water on a scheduled and measured basis according to the needs of the chili plants. The results of this implementation will help increase watering efficiency, reduce operational costs, and increase crop yields for farmers.
2. **Increased Chili Plant Productivity:** With an automatic watering system, farmers in Kota Pari Village can optimize the growing conditions for chili plants. Proper watering arrangements according to plant needs will help increase productivity, quality and uniformity of crop yields. This will have a positive impact on farmers' income and the availability of chili supplies on the market.
3. **Efficient Resource Use:** With an automatic watering system, the use of water and energy resources can be optimized. This system can monitor soil moisture and provide water precisely when needed, thereby avoiding unnecessary waste of water and energy. This efficient use of resources provides environmental benefits and also helps reduce farmers' production costs.
4. **Increasing Farmers' Knowledge and Skills:** During the implementation of service activities, farmers in Kota Pari Village were involved in socialization, training and assistance in using the automatic watering system. This helps increase farmers' knowledge and skills in implementing more modern agricultural technology. With a better understanding of automatic watering systems, farmers can manage their farms more effectively and efficiently.
5. **Community Capacity Development:** Through this service activity, the people of Kota Pari Village also have the opportunity to develop their capacity in adopting new agricultural technology. They learn about the use of automatic watering systems, better agricultural management, and the importance of applying technology in increasing agricultural yields. This community capacity development contributes to increasing independence and sustainable development in the village.

The results of this service provide real benefits for farmers and the people of Kota Pari Village in increasing agricultural productivity, efficient use of resources and knowledge of agricultural technology. The successful implementation of an automatic watering system can also be an inspiring example for other villages in adopting modern technology in the agricultural sector.

### 3.2. Discussion

Implementation of socialization and education in the context of community service "Socialization and Education on the Design of an Automatic Chili Plant Watering System in Kota Pari Village" can involve the following series of steps and methods:

1. Planning: Develop a plan for implementing socialization and education, including determining the schedule, location, participants and materials to be presented.
2. Material preparation: Prepare presentation material that is comprehensive and easy to understand about the design of an automatic chili plant watering system. This material should include an explanation of the system's working principles, benefits, operating procedures, and maintenance steps.
3. Outreach to partners: Hold meetings with partners (farmers or farmer groups) to introduce them to the concept of an automatic chili plant watering system. Describes its benefits in increasing irrigation efficiency, saving water, and increasing crop yields.
4. Practical demonstration: Conduct a live demonstration of the installation, operation and maintenance of an automatic chili plant watering system. Provides real examples of how to set a watering schedule, measuring soil moisture, and adjusting the system according to plant needs.
5. Practical training: Provide practical training to partners in system operation and maintenance. Participants are taught the steps to set up the system, replace damaged components, and troubleshoot common problems that may arise.
6. Discussion and questions and answers: Provide opportunities for participants to ask questions, discuss and share experiences related to the implementation of automatic watering systems. Clarify doubts and provide solutions to problems that may arise.
7. Evaluation: Evaluate participants' understanding and satisfaction regarding the socialization and training materials delivered. Collect feedback from participants to improve the quality of future activities.
8. Documentation: Record all socialization and education activities in the form of reports and visual documentation, such as photos or videos. This documentation is useful as information and program promotion material to other interested parties.

## 4. CONCLUSION

The conclusion of the service activity entitled "Socialization and Education on the Design of an Automatic Chili Plant Watering System in Kota Pari Village" is as follows, Socialization and education regarding the design of an automatic chili watering system provides significant benefits for the people of Kota Pari Village. Through this activity, participants gain a better understanding of efficient and sustainable agricultural technology. Implementation of an automatic watering system for chili plants in Kota Pari Village has had a positive impact in increasing productivity and plant quality. Timely and optimal watering reduces the risk of drought and disease in chili plants. The active participation and enthusiasm of the people of Kota Pari Village in taking part in socialization and education activities shows a high interest in adopting innovative agricultural technology. The results of this service contribute to improving agricultural sustainability in Kota Pari Village. Increasing productivity and efficiency in cultivating chili plants can help society increase economic income. Collaboration between the service team, community and village government is a key factor in the success of this activity. Good support and cooperation from all parties allows the implementation of the automatic watering system to be more effective and sustainable.

## REFERENCES

- [1] E. Hariyanto and S. Wahyuni, "SOSIALISASI DAN PELATIHAN PENGGUNAAN INTERNET SEHAT BAGI ANGGOTA BADAN USAHA MILIK DESA (BUMDES) MOZAIK DESA PEMATANG SERAI," *J. Abdimas BSI J. Pengabd. Kpd. Masy.*, vol. 3, no. 2, pp. 253–259, 2020, doi: 10.31294/jabdimas.v3i2.8449.
- [2] S. Wahyuni, E. Hariyanto, and S. Sebayang, "Pelatihan Camtasia Pada Guru SD Panca Budi Untuk Mendukung Transformasi Digital Sekolah Masa Pandemi Covid-19," *ETHOS J. Penelit. dan Pengabd. Kpd. Masy.*, vol. 10, no. 1, pp. 59–67, 2022.
- [3] S. Supiyandi, C. Rizal, M. Zen, and M. Eka, "PENGEMBANGAN SISTEM INFORMASI DESA

- UNTUK E-GOVERNMENT DESA TOMUAN HOLBUNG KECAMATAN BANDAR PASIR MANDOGÉ KABUPATEN ASAHAN,” *J. Pengabd. AL-IKHLAS Univ. Islam KALIMANTAN MUHAMMAD ARSYAD AL BANJARY*, vol. 8, no. 2, 2022.
- [4] S. Supiyandi, M. Zen, C. Rizal, and M. Eka, “Perancangan Sistem Informasi Desa Tomuan Holbung Menggunakan Metode Waterfall,” *JURIKOM (Jurnal Ris. Komputer)*, vol. 9, no. 2, pp. 274–280, 2022.
- [5] I. Yuniva, A. Andriansah, and D. J. Maulina, “Perancangan Sistem Informasi Penjualan Produk Hasil Daur Ulang Sampah Berbasis Website Dengan Pendekatan Metode Waterfall,” *J. Media Inform. Budidarma*, vol. 2, no. 4, p. 174, 2018, doi: 10.30865/mib.v2i4.896.
- [6] S. Wahyuni, B. Mesra, A. Lubis, and S. Batubara, “Penjualan Online Ikan Asin Sebagai Salah Satu Usaha Meningkatkan Pendapatan Masyarakat Nelayan Bagan Deli,” *Ethos J. Penelit. Dan Pengabd. Kpd. Masy.*, vol. 8, no. 1, pp. 89–94, 2020.
- [7] C. Rizal, R. H. Nasution, M. Eka, S. Supiyandi, and A. Y. Nasution, “Otomatisasi Kran Dan Tangki Air Pada Tempat Wudhu Berbasis Mikrokontroler,” in *Prosiding Seminar Nasional Sosial, Humaniora, dan Teknologi*, 2022, pp. 100–105.