



# Utilizing appropriate technology for enhancing production and digital marketing of traditional food through a website

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## ABSTRACT

Serayu Larangan Village in Purbalingga has umkm in the form of typical food, namely Jenang and Wajik "Jati Rasa". This MSME was founded during the Covid 19 pandemic. This MSME had problems in production and marketing. So far they have only used manual methods both in Jenang production and in sales. This service aims to help these MSMEs in increasing Jenang production and product marketing. The method used is a prototype for making tools to increase Jenang production and digital marketing to find out how important digital marketing is using a website for MSMEs to increase product marketing. The results achieved in this service are that participants can use automatic Jenang processing machines and coconut presses well and the electricity used is only 1 PS or the equivalent of 735 watts, and by using digital marketing with a website they can increase marketing globally and can be accessed anywhere and make sales effective and efficient from manual to automatic.

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## 1. INTRODUCTION

The village of Serayu Larangan is located in the Mrebet sub-district of Purbalingga Regency. The village has a population of 4,077 people, consisting of 2,080 males and 1,997 females. This significant population potential serves as a valuable resource to support the economic development of the community through Micro, Small, and Medium-sized Enterprises (MSMEs) (Muhamad, 2018).

Purbalingga Regency, where Serayu Larangan Village is situated, is one of the cities in Central Java with a diverse and thriving MSME sector. According to the Department of Cooperatives and MSMEs (Dinkop UMKM), there are approximately 96,000 MSMEs spread across the Purbalingga Kingdom region. The large number of MSMEs presents significant economic growth potential because the government has provided various facilities for them, including specialized stores known as "TUKA-TUKU." TUKA-TUKU is a dedicated place that sells MSME products and provides facilities for marketing these products (Wulandari, 2023). Marketing processes in TUKA-TUKU can be carried out both online through social media and offline through government-provided markets (Wulandari et al., 2020).

Serayu Larangan Village in Purbalingga Regency indeed boasts a diversity of MSMEs operating in various economic sectors. These MSME groups are divided into seven different categories based on the types of products they produce, including cuisine, handicrafts, instant herbal remedies (jamu instan), instant beverages, batik, accessories, and fashion. Interestingly, the culinary MSME group is the largest, constituting approximately 20% of the total entrepreneurs in Purbalingga Regency, including those producing the traditional snack "Jenang" (Abdillah et al., 2019).

Jenang, particularly the traditional Jenang from Serayu Larangan Village in Purbalingga, comes in three main variants: original Jenang, glutinous rice Jenang, and pandan Jenang. "Jati Rasa" Jenang, established in 2020 during the COVID-19 pandemic and managed by a local resident of Serayu Larangan Village, empowers the local community by employing them as workers in the company. Currently, this MSME has three production employees and six packaging employees. The target market for this MSME is limited to the residents of Serayu Larangan Village. For further development, "Jati Rasa" Jenang MSME offers three product variants: original Jenang, honey-flavored Jenang, and pandan-flavored Jenang. The production and business management processes of this MSME are conducted in the owner's home (Abdillah et al., 2019).

Based on interviews with the owner of "Jati Rasa" Jenang MSME, several issues have been identified, including the lack of appropriate technology and modernized equipment for Jenang production. This is evident in the absence of suitable technology in use, with the MSME still relying on manual labor due to limited human resources for Jenang production, requiring four individuals to stir Jenang for a duration of four hours. This leads to production inefficiencies. Additionally, the marketing of Jenang has not been optimized, as promotion and information dissemination about Jenang and Wajik in Serayu Larangan Village are limited and rely on word-of-mouth communication among local residents. Consequently, "Jati Rasa" Jenang and Wajik are only known within the village, resulting in suboptimal promotion efforts by the MSME.

One solution to address these issues is the development of an automatic mixing machine prototype. A prototype is a method that can be used to create or enhance a system or device, offering a quick and tactical solution in a technical design approach. The prototype approach facilitates active involvement of customers in system development, making it easier to meet customer desires and needs. It also allows for easier identification of requirements and fosters effective communication between users and system developers. Furthermore, it is suitable for use in small-scale systems deployed in specific areas, such as office environments (Ganggalia et al., 2022; Orlando & Chandra, 2022).

Designing an automatic Jenang mixing machine can enhance Jenang production (Sugiyanto et al., 2022). With the introduction of this machine, it would require less electricity and could operate efficiently in household settings (Supriyanto et al., 2023). As for marketing, digital promotion has become a crucial strategy for businesses, including micro, small, and medium-sized enterprises (Lanna et al., 2023). Digital marketing can be implemented through the use of websites and social media to enhance service quality and expand customer networks (Friadi, 2022). Digital marketing involves providing online content to attract and engage customers in interactive activities related to the company's products and services (Hasiholan & Amboningtyas, 2021).

This community service project has two main objectives: firstly, to assist "Jati Rasa" Jenang and Wajik MSME in increasing Jenang production efficiency by creating a suitable tool; secondly, to expand Jenang marketing through website development and the implementation of digital marketing practices, thereby supporting digital economic development.

## 2. METHODS

### Activity Planning

This community engagement activity took place at the premises of the “Jati Rasa” Jenang and Wajik producer, located in Serayu Larangan Village, Mrebet Sub-District, Purbalingga Regency, Central Java. The partners involved in this community engagement were the owner, as well as the staff and employees of the “Jati Rasa” Jenang and Wajik MSME. During field observations, it was observed that the owner of the “Jati Rasa” Jenang and Wajik MSME still utilized a large cooking pot, and employees manually stirred the Jenang mixture for 8 hours (Figure 1). The process of squeezing coconut residue (ampas kelapa) also relied on traditional tools and was carried out manually, as depicted in Figure 2.



**Figure 1.** Tool used to stir Jenang  
**Figure 2.** Manual coconut press

### Implementation Methods

The implementation stages of this activity consist of analyzing the issues faced by the MSME. In the problem-solving method, the brainstorming technique is employed, defined as a way of collecting a large number of ideas from a group of people in a short amount of time (Wulan, 2021). This method is often used to tackle creative problems and can be employed either independently or as part of a larger strategy (Sabri et al., 2021).

Subsequently, the brainstorming method is conducted through a Focus Discussion Group (FGD), which is an activity or discussion forum that can be conducted online or in-person among a group of individuals with the goal of sharing opinions, ideas, experiences, or information related to a specific topic (Wijaya & Usmoni, 2023). The diversity of information generated during the discussion makes it flexible and productive, enabling the results of the discussion to flow effectively and be understood by various parties (Mustadh'afin & Suharyat, 2023).

Next, in the problem-solving process, products and a website are developed using the prototype method. The final stage involves human resource training through the socialization of the automatic Jenang processing machine and automatic coconut squeezing machine. The socialization also includes the evaluation of website effectiveness through digital marketing.

### Implementation Stages

In the implementation of this program, four methods are employed, which include problem analysis, problem-solving processes, product development, and human resource training in the “Jati Rasa” Jenang and Wajik MSME. The workflow of the implementation stages is depicted in Figure 3.



Figure 3. Implementation stages

### Troubleshooting

To conduct an analysis of the issues faced by the targeted MSME, a method that can be employed is direct field observation. Through this observational approach, a better understanding of the existing problems can be achieved. From the results of these observations, it was determined that the production of Jenang and Wajik still relies on traditional tools that require manual labor, and the product marketing is suboptimal, being known primarily within the village community.

### Problem Solving

Based on the problem analysis conducted with our partner, it was determined that there is a need for the development of appropriate technology to support production and marketing. This will be achieved by creating automated machines for Jenang processing and coconut residue squeezing, as well as by developing a website to enhance the marketing of products from the "Jati Rasa" Jenang and Wajik MSME.

### Making of Products

The production of these products involves the use of tools as the implementation of appropriate technology. These tools will serve as product prototypes to test their functionality and identify any issues. Additionally, troubleshooting will be conducted for the website that has been developed to ensure its smooth operation.

### Human Resources Training

After the successful product testing has been conducted, the final step is to provide training and socialization to the employees and owner of the Jenang and Wajik MSME regarding the use of the products. This training aims to enhance their competence in operating the equipment and managing the website effectively. To facilitate this human resource development, we have invited professors or experts knowledgeable about the equipment prototypes and website development.

### Program Implementation Schedule

Table 1 shows the program implementation schedule that has been prepared by the community service team in collaboration with partners.

## 3. RESULTS AND DISCUSSION

### Troubleshooting Results

In this stage, we conducted direct observations at the "Jati Rasa" Jenang and Wajik MSME in Serayu Larangan Village, Purbalingga Regency, and conducted interviews with the owner of the MSME

using brainstorming methods. Additionally, we organized a Focus Group Discussion (FGD) with our partners to delve into the issues and find solutions. All of these efforts were made to understand and assist our partners in addressing their challenges.

**Table 1.** Schedule

<b>1<sup>st</sup> Meeting</b>		<b>Troubleshooting</b>
Activities	<ul style="list-style-type: none"> <li>- Formation of a service team consisting of 3 lecturers</li> <li>- Looking for prospective MSME partners in Purbalingga</li> <li>- Prepare questions for potential partners</li> <li>- Preparation for field observations</li> </ul>	
Goals	<ul style="list-style-type: none"> <li>- Knowing the origins of the partner whose service will be carried out</li> <li>- Understand partner problems in terms of production and marketing</li> </ul>	
<b>2<sup>nd</sup> Meeting</b>		<b>Problem Solving</b>
Activities	<ul style="list-style-type: none"> <li>- Discussion of methods that will be used in solving problems</li> <li>- Discussion with experts regarding the shape of the tool to be made</li> <li>- Discussion with experts related to the website that will be created</li> </ul>	
Goals	<ul style="list-style-type: none"> <li>- To be able to provide an overview of the tools that will be made to increase product production</li> <li>- Knowing website design for MSMEs in improving product marketing.</li> </ul>	
<b>3<sup>rd</sup> Meeting</b>		<b>Making of Products</b>
Activities	<ul style="list-style-type: none"> <li>- Testing of Jenang processing machines and coconut husks pressing machines</li> <li>- Test the website</li> </ul>	
Goals	<ul style="list-style-type: none"> <li>- To know that the machine is functioning properly before sending it to a partner.</li> <li>- Explain that the website is running well and there are no bugs.</li> </ul>	
<b>4<sup>th</sup> Meeting</b>		<b>Human Resources Training</b>
Activities	<ul style="list-style-type: none"> <li>- Conduct training for staff and employees of Jenang and Wajik "Jati Rasa"</li> <li>- Conduct training to MSME owners related to product marketing</li> </ul>	
Goals	<ul style="list-style-type: none"> <li>- Knowing how to use these two tools properly</li> <li>- Knowing how to manage a website for marketing MSME products</li> </ul>	

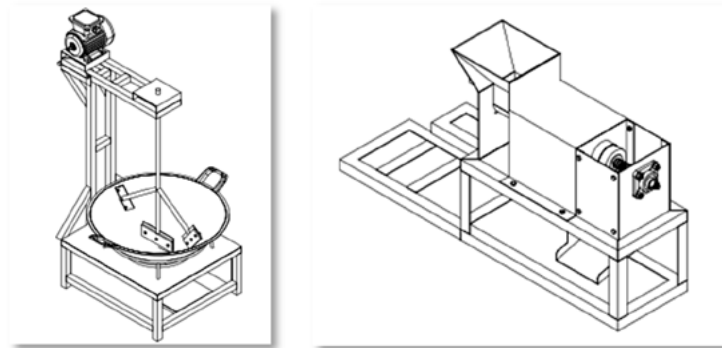
Information obtained from the owner of the MSME revealed that Jenang is a traditional snack with distinctive characteristics in its production process compared to dodol. The production of Jenang still relies on traditional equipment, including the use of large pots and the involvement of human resources in stirring the Jenang mixture. This process not only consumes a significant amount of time but also requires substantial physical effort. To stir the Jenang, four individuals take turns performing the task.

Regarding the marketing of "Jati Rasa" Jenang and Wajik, the current approach primarily relies on word-of-mouth promotion, and knowledge about the products is limited to the local community. As of now, promotion and information dissemination about Jenang and Wajik in Serayu Larangan Village remain extremely restricted and have not reached a wider audience. This limitation arises from promotional efforts relying solely on information exchange within the local community, resulting in "Jati Rasa" Jenang and Wajik being predominantly known within the confines of Serayu Larangan Village.

### **Creation of Tool and Website Design**

In the problem-solving process, the next step involves designing the equipment for the application of appropriate technology that will be used by the MSME. The design of appropriate technology is

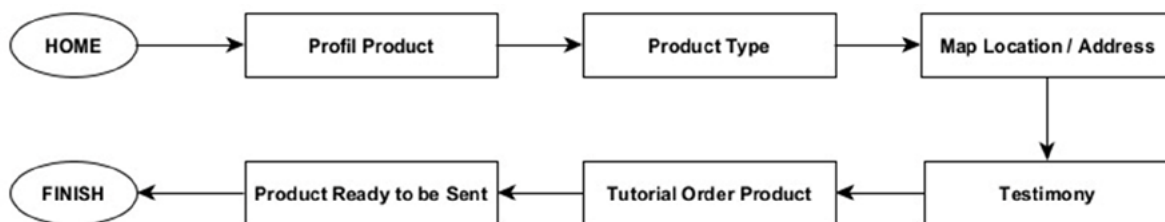
accomplished through discussions with experts in the field of prototype machine development. This equipment production aligns with the method employed, which is the website method in the creation of automatic Jenang processing machines and automatic coconut residue squeezing machines. The website is also developed using a prototype approach after discussions with expert professors in the field of website development. There are two types of equipment designs: the automatic Jenang processing machine and the automatic coconut residue squeezing machine. Both designs are depicted in Figures 4 and 5.



**Figure 4.** Design of automatic jenang mixing machine  
**Figure 5.** Coconut dregs squeezer machine design

Figure 4 represents the design draft created using AutoCAD 3D, which will be used to create an automatic Jenang stirring machine. Figure 5 shows the design draft for the machine used for coconut residue squeezing. In the design of the automatic Jenang processing machine, materials such as a wok, reinforced steel, motor, stainless steel pipes, ezzer plate, hollow pipes, and angle iron frames are used. On the other hand, the automatic coconut residue squeezing machine is constructed using materials like angle iron frames, motor, gearbox, and stainless-steel plate.

Following discussions with the website development team, a website design for the digital marketing of "Jati Rasa" Jenang and Wajik was created and is presented in Figure 6.



**Figure 6.** Jenang and diamond marketing website design "Jati Rasa"

Figure 6 illustrates the flowchart of the digital marketing process for "Jati Rasa" Jenang and Wajik. Within the website, there are elements such as hosting, domain, and WhatsApp Business. Additionally, the website contains information including the profile of the MSME, types of products offered, the location of the MSME, and testimonials. The website was created using the prototype method and was developed using PHP programming language with a SQL database.

### Testing of Jenang Processing Machines and Coconut Husks Squeezing Machines

Figure 6 illustrates the flowchart of the digital marketing process for "Jati Rasa" Jenang and Wajik. Within the website, there are elements such as hosting, domain, and WhatsApp Business. Additionally, the website contains information including the profile of the MSME, types of products offered, the location of the MSME, and testimonials. The website was created using the prototype method and was developed using PHP programming language with a SQL database.



**Figure 7.** Trial of Jenang processing machine and coconut husks pressing machine

The Jenang processing machine and coconut husks pressing machine are made to the specifications presented in Table 2.

**Table 2.** Jenang processing machine and coconut husks pressing machine specifications

Specifications	
Jenang processing machine	Coconut husks pressing machine
Angle Iron Frame 40x40 mm	Angle Iron Frame 40x40 mm
Hollow 50x100 mm	1 mm Stainless Steel Plate
Pan diameter 80 cm	2 mm Stainless Steel Plate
2mm Eezer Plate	2.5 mm Stainless Steel Plate
1 Inch Steinless Pipe	US 1 Inch Iron
12 mm Concrete Steel	1 HP dynamo
US 1 Inch Iron	Gearbox 1:4.0
0.5 HP dynamo	UCF 205

Based on Table 2, it is known that the advantages of using these specifications are that the machine uses small electrical equipment, can be used for home industries, and helps employees produce Jenang more quickly.

### Human Resource Training

The objective of this human resource training is to provide our partners with an understanding of how to use the machines and manage the website for the digital marketing of their products. Another goal is to enhance the competence of the human resources involved in product development and future business endeavors. The implementation of training for the use of the automatic Jenang processing machine and the automatic coconut residue squeezing machine is illustrated in Figure 8.



**Figure 8.** Implementation of training on the use of Jenang processing machines and coconut husks pressing machines

Based on Figure 8, the human resource training encompasses the operation of the machines, including coconut residue squeezing, stirring of ingredients, and automatic finishing. The use of these machines reduces the Jenang production time to just 2 hours, with energy consumption being economical at around 1 PS or 735.499 watts, making it suitable for home industry-scale businesses. This production process is expected to enhance the quality, cleanliness, and durability of the products. Additionally, the training provides guidance on machine maintenance to ensure their long-term sustainability.

The training for website management is targeted towards the owners of “Jati Rasa” Jenang and Wajik MSME. The objective of this training is to improve product promotion to reach a broader audience. The website management process involves photographing the finished products and creating a website design that aligns with the products being offered. The website management training process is depicted in Figure 9.



**Figure 9.** Website management training

As a result of the digital marketing management training, the owners of “Jati Rasa” Jenang and Wajik MSME have gained a deeper understanding of the functionality of their website. Thanks to this training, customers can easily access information about the available products, and the website can operate smoothly without disruptions (bugs). For customer convenience, the training has also integrated a WhatsApp Business ordering service that is linked to the website. Orders are promptly processed upon customer payment. With this online marketing strategy in place, it is anticipated that the products can reach a wider market, not only within Serayu Village but also in other regions.

To achieve this goal, employees have also been involved in website management training. Their participation is expected to enhance collaborative and sustainable marketing efforts, ultimately leading to increased product sales in the future.



## Discussion

The community service program aims to enhance Jenang production through the utilization of automated equipment such as the automatic Jenang processing machine and the automatic coconut residue squeezing machine. The effectiveness of these machines in replacing manual processes has been demonstrated, resulting in increased Jenang production. Furthermore, these machines have a positive environmental impact due to their relatively low energy consumption, approximately 0.5 HP and 1 HP.

The Jenang processing using these machines also implements appropriate technology through the prototype method. This method allows for the identification of partner needs and preferences through discussion forums and brainstorming sessions. Consequently, the development of the machines can be more precisely tailored to the needs of small and medium-sized enterprises (SMEs).

Additionally, website development plays a crucial role in marketing improvement. The website creation process also follows the same prototype method. Through this website, SMEs can replace conventional marketing methods that rely on word-of-mouth information exchange. Thus, SMEs can be more effective in promoting their products and reaching a broader potential customer base.

Based on unstructured interviews between the implementing team and participants and direct observation during operation, the community service program conducted by the Telkom Institute of Technology Purwokerto team has yielded the following results: (1) The program implementation has enhanced and enriched the knowledge of employees and staff by improving their skills in operating machines that produce products, as well as their mastery of the use of the website for increased product sales to generate additional income. Participant knowledge improvement is reflected in their consistent attendance from the beginning to the end of the program. During each meeting, the implementing team provided theoretical and practical information that participants immediately applied; (2) Enhanced participant knowledge about the use of automatic machines in handling Jenang raw materials and additional knowledge about the product-making process. Indeed, the implementation method in the form of automatic machine case studies can focus participant knowledge on transforming raw materials into Jenang products.

In the implementation of this community service program, several factors have supported its smooth execution: (1) Support from the Partner: The program's partner has provided significant support by offering training facilities. Participants in the program are also employees and MSMEs who are partners and have played a role in its success; (2) Participant Enthusiasm: Program participants have shown a high level of enthusiasm and excitement throughout the activities. This is reflected in the stable number of participants and their active input during practice. Question and answer sessions have also been an essential platform for collecting feedback from the implementing team; (3) No Disruption from Other Activities: There have been no disruptions from other activities during program implementation. Permissions for program execution were obtained in advance from the Head of Serayu Larangan Village, ensuring the program's smooth operation. Additionally, participants were already familiar with each other, minimizing communication barriers; (4) Local Partner Commitment: The local partner has expressed a willingness to utilize the program to support community service. They have also provided refreshments for participants, reducing additional costs that participants or groups would have had to bear. All of the above factors have been crucial pillars in running the community service program successfully and efficiently. Support from the partner, active participant participation, smooth permissions, and local partner commitment are factors that have strengthened the success of this program.

Picture 10 shows the process of handing over the equipment from the community service team to the business owner. This handover is done after ensuring that the automatic coconut husk press

machine and the automatic Jenang processing machine are functioning properly. The handover of the website is also carried out after ensuring that the website can be operated smoothly and effectively.



**Figure 10.** Process of handing over equipment in the form of a coconut husks squeezing machine and Jenang processing machine and website

#### **4. CONCLUSION AND RECOMMENDATIONS**

The community service program aims to assist the small and medium-sized enterprises (UMKM) of "Jati Rasa" in improving the production of Jenang by creating appropriate tools to enhance production efficiency. Additionally, another objective is to expand the marketing of Jenang through the creation of a website and implementing digital marketing to support digital economic development. The program results in the development of an automatic Jenang processing machine and an automatic coconut husk press machine. Both of these machines represent the application of appropriate technology using a prototype method. The use of these machines results in faster and increased production. Furthermore, to address marketing challenges, training in website management is provided to optimize product marketing. Through online marketing methods, promotions can reach a wider market. In general, the outcomes of the program represent a transition from manual to automated processes, leading to increased production and optimization of the "Jati Rasa" Jenang and Wajik products.

The limitations of the program are as follows: (1) Lack of understanding of automation machines and information technology; (2) Limited understanding of practical methods; (3) Limited time frame for program implementation. For future program implementations, it is essential to consider the capacity of human resources, especially in terms of understanding information technology and appropriate technology automation. Additionally, allocating more time for providing sufficient knowledge on maximizing the use of the tools for production and website management for marketing is crucial. Continuous mentoring and monitoring of partners are needed to ensure the program's continuity. It is advisable to follow up the program through collaboration with other partners or external parties outside the institution to gain a broader response to the community service program that has been conducted.

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