

Application of Technology Computer Numerical Control Use Improvement Capacity Product Furniture Randusari Going to Market Export

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Abstrak

Tim pengabdian menyusun kegiatan yang dapat meningkatkan kapasitas dan kualitas produksi mebel sebagai produk berpotensi ekspor dengan penyediaan teknologi produksi yang modern, melakukan diversifikasi produk, merintis pemasaran secara e-commerce untuk menjangkau pasar luar negeri. Teknologi produksi ini berupa mesin CNC berbasis android yang dapat berfungsi sebagai mesin pemotong dan mesin ukir. Rancang bangun mesin CNC berbasis android ini akan daftarkan HKI- hak cipta di DJKI Kementerian Hukum dan HAM RI. Diharapkan dengan pelaksanaan kegiatan ini memberikan dampak positif dan memberikan manfaat bagi masyarakat kelurahan Randusari dan Wirogunan. Adapun manfaat bagi masyarakat kelurahan Randusari dan Wirogunan antara lain: bertambahnya pengetahuan masyarakat mengenai ketrampilan dalam memanfaatkan teknologi dalam memasarkan produk atau mengembangkan produk, bertambahnya pangsa pasar masyarakat melalui pemasaran secara e-commerce untuk menjangkau pasar luar negeri, meningkatkan pendapatan pengrajin mebel di daerah sekitar sehingga dapat meningkatkan kapasitas dan produksi mebel, serta meningkatkan pengetahuan masyarakat sekitar tentang manajemen keuangan melalui sistem cloud computing sehingga dapat mengembangkan usahanya.

Kata kunci—Teknologi, Kapasitas Produksi, E-Commerce, Ekspor

Abstract

The service team has organized activities that can increase the capacity and quality of furniture production as a potential export product by providing modern production technology, diversifying products, and pioneering e-commerce marketing to reach foreign markets. This production technology is an Android-based CNC machine which can function as a cutting machine and engraving machine. The design and construction of this Android-based CNC machine will register IPR copyright with the Indonesian Ministry of Law and Human Rights DJKI. It is hoped that the implementation of this activity will have a positive impact and provide benefits to the people of Randusari and Wirogunan sub-districts. The benefits for the people of Randusari and Wirogunan sub-districts include: increasing community knowledge regarding skills in using technology in marketing products or developing products, increasing community market share through e-commerce marketing to reach foreign markets, increasing the income of furniture craftsmen in the surrounding area so that they can increase furniture capacity and production, as well as increasing local community knowledge about financial management through cloud computing system so they can develop their businesses.

Keywords—Technology; Production capacity; E-commerce; Export

1. PENDAHULUAN

Pasuruan is one area famous for production the of furniture apart from Jepara. The location of the Pasuruan area located in the intersection track regional Surabaya-Probolinggo-Malang is very strategic For trading so that has the potential for furniture manufacturers to increase production And market it. Furniture production in Pasuruan is carried out by various parties starting from furniture

craftsmen from home scale to industrial factories in the form of UD and PT. The regions in Pasuruan City that have become the centre of production furniture are Gadingrejo and Purworejo City Districts Pasuruan. Gadingrejo District consists of eight wards, but the wards Which become the centre producers of furniture are Randusari and Bukir.

One of the furniture craftsmen in Randusari is UD “Sumber Urip” which is led by Sugeng Prasetyo (36 years old) and currently has 15 members. This UD

was established in 1990 with an initial capital of 3 million. This UD produces guest chairs, dining tables, and cupboards. In addition to UD "Sumber Urip", there is UD Mebel Ike business led by Ike Melani Sofi which has 15 members. This furniture business was established in 1997 by Ike's parents, with an initial capital of 2 million rupiah.

Craftsmen (UD Sumber Urip and UD mebel Ike) started their efforts with the provision of raw materials in the form of the wood, sawmills, produce furniture Then in the market through a shop located along Urip Sumoharjo Street And Gatot Subroto in Randusari. Products produced by this furniture centre are chairs, tables, and cupboards with various variation. During the pandemic Covid -19, craftsmen experienced a setback in marketing their products, so Lots of craftsmen experienced roll mats. But in mid-2022, craftsmen started to rise in developing their efforts.

Based on observations made team devotees with craftsmen, obtained information that craftsmen get raw materials in the form of teak wood, gemelina and acacia from trader wood Which market his merchandise at Bukir market. The wood is Still in the form of wood logs. Wood logs Finally produced furniture customized to the request market. The wood used for the production process, namely teak wood (material) main) while gemelina wood and acacia as a mixture. However, the competition in the industry furniture the more strict, with The increasing popularity of plywood cupboards or HPL Which is more in demand for buyers Because priced with price cheap (not enough from 1 million). For that, the group of craftsmen must innovate in making furniture according to market demand, though constrained by inadequate production equipment, for example, lack of machines.

So it is necessary addition of production tools both in terms of quality And quantity. Because additional production can increase quality And quantity production Which produced (5-7). Based on interviews and results observed with the second UD, the product Which produced worthy export Because from aspect quality very Good, but constrained by the requirements to become an exporter. Product This was Once marketed to Malaysia in the year 2016 - 2018. One year ago, is buyer from Malaysia came to Randusari to buy a cupboard, table, And chair visitor. In the year 2023, UD Source Life can send the product in the form of a tool Eat from wood to China through a distributor. UD Source Life is Not yet exported Alone Because constrained by business licensing require shaped PT.

Strategy marketing Which is done by partners only utilises social media (like IG And WhatsApp) For market business so that No can reach consumers more widely. Second Business Furniture This Not yet own

skills market product through service marketplace online, website or blog. Whereas public modern moment This more like For utilise technology based on the website. Lack of creativity second UD This in utilise marketplace on line become reason obstruction rate of development business.

The abilities possessed by both UD in managing finance Still classified as low. Matter This proves, that recording finance is Still done manually, so the second business furniture difficulty in determining profit per year. Second business furniture Not yet own skills in manage finance integrated with technology Which developing nowadays.

The objective activity of the devoted public in this first year is to increase the capacity And quality production of furniture as a product potential export with the provision of technology production Which modern, diversified product, pioneer marketing via e-commerce to reach the market outside the country.

The problem priority that experienced the second partner is How to increase the capacity And quality production of furniture as a product potential export with the provision of technology production Which modern, diversified product, pioneer marketing in a way e-commerce To reach markets outside the country. Technology production This is in the form of machine CNC based on Android that can function as a machine cutter and engraving machine. Design machine CNC based on Android This will register IPR-rights created in DJKI Ministry Law and Human Rights RI.

Implementation of PM -UPUD activities is expected to have a positive impact and benefit public ward Randusari And Wirogunan. As for the benefits for the sub-district community Randusari And Wirogunan are as follows:

- a. The increase in knowledge public regarding skills in utilise technology in marketing products or develop product.
- b. Increasing the market share of the community through marketing in a way e-commerce reaches foreign markets.
- c. Increase income of craftsman furniture in the surrounding area so that it can increase the capacity And production furniture.
- d. Increase knowledge public about management finance through a cloud computing system so can develop his business.

The output produced includes (1) Provision tool production in the form of machine Computer Numerical Control (CNC) laser android based which has two functions namely cutting and engraving and doing socialization use machine And maintenance machine, (2) Improvement skills through socialization through E-Commerce based marketing system, (3) Focus discussion to do branding products to carry out marketing to outside country (Export), (4)

Improvement knowledge about management finance through making system Cloud Computing, E-Commerce based marketing system and improvement competence development product design.

2. METHOD

Methods in implementing PM-UPUD include Focus Discussion, additional tool production both in quality and quantity, making Website And e Commerce, management licensing business, training, mentoring, as well as monitoring and evaluation monthly.

Addition of production tools both in terms of quality And quantity

Additions tool production This aims to increase capacity production so that produce products Which more quality. The addition of tools meant is: Machine CNC based on android. CNC machine based on Android in the form of a machine Computer Numerical Control (CNC) laser based on Android Which owns two functions : cutting And engraving. Making carving (engraving) in accordance with pattern/picture through Instructions program And execution of making the carving Which uses program/software. Machine carving model CNC used so that accuracy (precision And accuracy) size/dimension met. Program instructions according to dimensions through the creation of unique codes to be specific and appropriate in form. The following engraving machine design drawing is based on CNC.

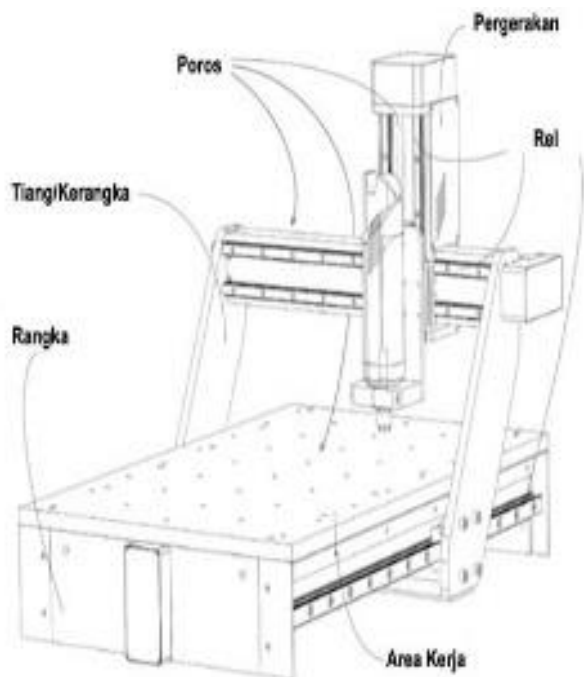


Figure 1. CNC Machine Design based on Android

Making E-Commerce

E-commerce is a technology that become

fundamental to every organization It moves in the field of trading, besides That method for consumers to be able to buy goods desired by utilizing technology Internet (11). Utilization of e-commerce technology can be felt by consumers (business to consumer) or by business actors (business to business). Following is the submission specification application e-commerce: 1) Accounts; 2) Basket Shopping; 3) Guest Book; 4) Search; 5) Information Product; 6) Method Payment; 7) Booking.

Whereas non-functional need hardware, software, And brainwave. The details of the requirements are: as follows:

- a. Hardware
 - 1)Processor Core – Intel
 - 2)Memory (RAM) – 8GB
 - 3)Hard disk – Sandisk SSD 240GB
 - 4)Network Speed – 1GBP
- b. Software
 - 1)Apache – Version 2.4
 - 2)Java
 - 3)Unix System Operation
 - 4)MySQL/MySQLi – Version 5.5.x
 - 5)PHP – Version 5.4.x
 - 6)Tomcat Version 8.5.3
 - 7)SSL Certificates
- c. Brainware
 - 1)Able administrator to operate e-commerce.
 - 2) Owner Which is capable operate application e-commerce.

A use case diagram is A scenario Which describes step- step Which explains the interaction between the user with system to reach the purpose of the user/actor. The use case is the interaction between external actors and the system, results Which can observed by actor, oriented on objective, described in the diagram use case And text.

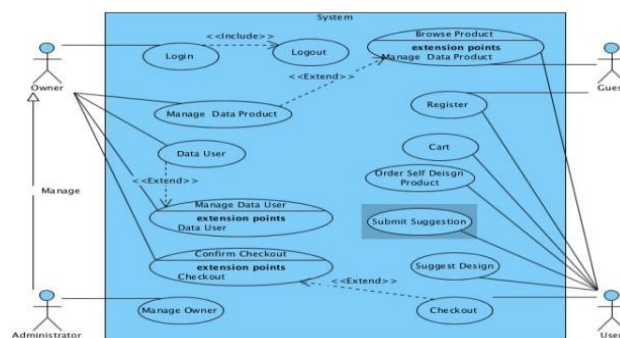


Figure 2. Diagram Usage Case

Focus Discussion

Focus Discussion, Training, Mentoring Activity done during devotion PM - UPUD, more focused on increasing production aspects, aspects finance, aspect marketing, And aspect source Power man.



Figure 3. Coordination Team Devotee with Government Village

Superiority technology production, innovation management And innovation marketing This can increase production capacity, quality product, diversification of product superior, overseas marketing reach And product quality assurance. Implementation evaluation program And sustainability program in the field done after the activity is implemented. As for form activity done on devotion PM - UPUD is as follows:

- a. Aspect Production: Socialization uses a machine And maintenance machine, the implementation uses machine CNC based on Android, mentoring by team devotees.
- b. Aspect Marketing: improvement skills through socialization through an E- based marketing system Commerce, focus discussion To create target market and marketing mix, focus discussion to do product branding, Assistance by team devotee, monitoring and evaluation every a month very.
- c. Aspect finance: Focus discussion For making system Cloud Computing, socialization of methods use of Cloud Computing systems, Mentoring by team devotees, Monitoring and Evaluation once a month.
- d. Aspect Resource Man: training using machine And machine maintenance, training through system marketing based on E-Commerce, training using system Cloud Computing, training competence development design product, mentoring by team devotion, monitoring and evaluation every month.

3. RESULTS AND DISCUSSION

Technology applied to increased production

Machine Computer Numerical Control (CNC) android-based CNC machine laser based on Android which has two functions: cutting And engraving.



Figure 4. Service Team and Partners together Machine CNC based on android

Machine carving model CNC used so that accuracy (precision And accuracy) size/dimension met. Program instructions according to dimensions through the creation of unique codes to be specific and in accordance with the form.

Making E-Commerce

E-commerce is designed based on the design diagram use case. Design diagram use case will describe the behaviour of every actor in implementing application e-commerce.

Focus Discussion

Focus Discussion, Training, Mentoring, Partner participation in cooperation and in-kind and in-cash contributions, starting from mentoring, coordination field with for perpetrator business specifically craftsman furniture related with the use of tools to provision place for focus discussion implementation and also training.

Based on the activity that already walked, can conclude happen improvements in both partner knowledge, capacity production and also turnover accepted, that is:

- 1) Improvement knowledge partner related management in manage finance as big as 80%.
- 2) Increase capacity production as big as 70 % (Originally For designing carving wood through manual. With workmanship, The carving took 5 days to complete. One set chair, after having tool machine CNC, so workmanship carving just needs time 2 day.
- 3) Increasing amount turnover partners as big as 69%. Before having tool machine CNC, the turnover of special carved furniture only generated 15 million in revenue per month, after having the machine tool CNC increased turnover by approximately 48 million per month.
- 4) Partner knowledge regarding the use of E-Commerce increase around 90%. Initially, people only used social media and WhatsApp groups for market goods, but after activity devotion knowledge partner to E-Commerce usage increased.

- 5) Marketing through E-Commerce increased by 100%. Originally No There sales transactions via E-Commerce, but after activity devotion to partners, there are transaction sales through E-Commerce.

D. CONCLUSION

Based on the activity, we can conclusion is :

1. Implementation of an android-based CNC machine can increase capacity production by 60% for UD Sumber Urip, and 57 % for UD Ike Furniture.
2. Implementation of E-Commerce To expand marketing And can increase turnover by 69% for UD Sumber Urip, and 66% for UD Ike Furniture.
3. Partner knowledge of E- implementation commerce For the market his efforts increase as big as 80 % For UD Source Life And 90 % For UD Ike Furniture.
4. Activity process improvement production.

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REFERENCES

- Maulana F, Mr. Ruja I, God Putu Eskasasnanda I. Furniture craftsman at City Pasuruan (strategy craftsman Bukir furniture in Pasuruan City maintain business furniture in middle competition with industry furniture). *Journal Integration And Harmony Innovative Knowledge _ Knowledge Social*. 2022;2(5):404–8.
- Febrian A A, Riyanto WH, Sri M, Suliswanto W. The Influence of Capital and Power Work To Production Industry Furniture Bukir City Pasuruan. *Journal Knowledge Economy (JIE)*. 2020. 4(2).
- Muhammad Alfin, Syaiful Izza, Muhammad Yasin. Analysis of Industrialization Strategy in Furniture Industry in Bukir Village, Subdistrict Gadingrejo, City Pasuruan, Java East. *Trending: Journal Management And Economy*. 2023. 2;1(3):82–93.
- Maulana F, Mr. Ruja I, God Putu Eskasasnanda I. Furniture craftsman at City Pasuruan (strategy craftsman Bukir furniture in Pasuruan City maintain business furniture in middle competition with industry furniture. *Journal of*

- Integration and Harmony Innovative Social Sciences (JIHI3S)*. 2022;2(5), 404-408.
- Ferdinand RD, Yudiono U, Pure love TR. Use of Modified Herbal Medicine Machine Traditional For Increase Results Production. *ABDI: Journal Devotion And Empowerment Public*. 2019;1(2):2684–8570.
Available from:
http://abdi.ppj.unp.ac.id/index.php/a_bdi
- Ferdinand RD, Augustine R, The Wise S, Fayeldi T, Ika Y, Pranyata P, et al. Improvement Capacity Production Bag Center in Tanggulagin Sidoarjo. *Journal Devotion to Public*. 2021;10(1).
- Ferdiani RD, Tatik), Murniasih R, Wilujeng S, Suwanti V, Studies P, et a. Additions Tool Production Purpose Increase Productivity Adding Production Doormat Craftsmen Tools To Increase Productivity Of Doormat Craftsmen. *Journal Devotion And Empowerment Public*. 2018;2(1):23–8.
- Sampeallo AS, Wahid A, Meok NJ. Effort Improvement Production Furniture On MSMEs City Kupang Based on Appropriate Technology. *Devotion To Public*. 2019;3(2):258–265.
- Madania A. Implementation of E-Commerce System. *Journal Management System Information*. 2021; 4(2).
- Atun Mumtahana H, Nita S, Winerawan Tito A. Utilization of E-Commerce Web For Increase Strategy Marketing. *Treasures informatics Journal Knowledge Computer And Informatics* 2017;3(2).