

Development of paint mixer device with painting apparatus

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Abstract: The researchers develop paint mixer device with painting apparatus for research study with the desire to improve, enhance the usefulness and practical ways for mixing paints and painting activities especially on metal, wood, concrete and plastic/acrylic materials, as well as job satisfaction and for economic development. In this problem, a study that somehow can be used as an alternative for large scale and expensive paint mixer machine available in the market. To make research, do some experiments, share ideas, knowledge, and thoughts in able to develop paint mixer device with painting apparatus as an alternative for large and expensive paint mixer machine: By this information stated, it can help and improve the skills of each individual. This study enhances the performance level of every person who wants to use this product. A kind of device can be use to provide ease of work in terms of mixing paint by using timer with alarm and built-in compressor for spray painting activities. The essence of this research is to add feature of the device and mobility for workmanship, it will enhance construction painter and artists capability to work using paint mixer device with painting apparatus. Perhaps it is difficult as first time to introduce this kind of equipment but to maintain the ability of innovative mind when it comes to technical specification, performance and applicability surely we can able to adapt and fabricate paint mixer device with painting apparatus. Objectives of the Study: Generally, this study aimed to develop paint mixer device with painting apparatus. Specifically, it will sought to; (1) Determine the quality result of develop paint mixer device with painting apparatus in terms of utility, composition and portability. (2) Applicability of develop paint mixer device in terms of design, capacity and efficiency. (3)Acceptability of develop paint mixer device in terms of technical specification and safety features.

Keywords: Technical specification, Capacity, Efficiency, Design and paint mixer

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INTRODUCTION

The design is actually the product of continuous effort of the researchers to come up with a device suitable for automotive painting services and construction firm activities.

In designing, the researcher will be developing a paint mixer device with painting apparatus with switch timer with alarm, electrical/electronics components and mechanical parts which is properly joint and mechanically fastened with their specific functions. The design is composed of three main parts which utilized the paint mixer, compressor and spray painting accessories which are interconnected to each other whenever the device is used. It also include body frame and caster wheel with lock whenever the device is used. The device can be operational and functional according to each parts and it will be done through manual operation.

Statement of the problem

Generally, this study aimed to develop paint mixer device with painting apparatus.

Specifically, it will sought to;

- 1) Determine the quality result of develop paint mixer device with painting apparatus in terms of utility, composition and portability.
- 2) Applicability of develop paint mixer device in terms of design, capacity and efficiency.
- 3) Acceptability of develop paint mixer device in terms of technical specification and safety features.

METHODOLOGY

Research design

This study employed a developmental research design, which systematically involves designing, developing, and evaluating a product or process to meet specific criteria for effectiveness and consistency. Following Seels and Richey's (1994) definition, the research aimed to develop a paint mixer device with a painting apparatus by modifying various processes in spray and manual painting activities. The study focused on designing a device that integrates technical and mechanical components to achieve functionality, ease of use, and adaptability in various painting applications.

Locale of the study and respondents

The study was conducted in a setting that allowed for the fabrication, testing, and evaluation of the paint mixer device with painting apparatus. The respondents included construction painters, mural artists, and automotive painting service professionals. These individuals were selected to assess the utility, applicability, and acceptability of the device in terms of design, capacity, efficiency, technical specifications, and safety features.

Research instruments

The primary research instruments included a fabricated paint mixer device with painting apparatus and structured evaluation tools. These tools assessed the device's quality, utility, composition, portability, design, capacity, efficiency, technical specifications, and safety features. Data were gathered using surveys and feedback forms from the respondents, focusing on their experience with the device's functionality and effectiveness.

Data analyses procedure

Data were analyzed quantitatively, using descriptive statistics to compute means and grand means for the various evaluation criteria. Verbal interpretations such as "Very Good" and "Very Applicable" were assigned to the computed values to provide an interpretative understanding of the device's performance. The analysis highlighted the strengths and areas

for improvement of the paint mixer device, supporting the development of recommendations for further enhancements.

FINDINGS AND DISCUSSION

Quality result of develop paint mixer device with painting apparatus in terms of utility, composition and portability

Quality result of develop paint mixer device with painting apparatus in terms of utility, a grand mean of 4.50 which verbally interpreted as very good. This implies that the device have planned for a specific purpose in painting and color mixing activities, useful, especially through being able to perform several functions and parts and function are commendable for end user (construction painter, mural artists and automotive painting services). In terms of composition, a grand mean of 4.39 which verbally interpreted as very good implies that the device are made of schedule .40mm by 200mm by 200mm metal tubular coated with epoxy primer paint and properly welded parts and joints, removable 15 volts paint mixer motor integrated with lavatory sink for washing and compartment area for compressor and spray gun and 1/4 thick marine ply board casing with two sliding door and drawer type paint pad for roller paint brush..

In terms of portability, got a grand mean of 4.31 which verbally interpreted also as very good implies that the device having caster wheel with lock for ease of work, ability to move or be moved freely and easily and ability to perform spray painting, roller paint brush and mixing.

Applicability of develop paint mixer device in terms of design, capacity and efficiency

Applicability of develop paint mixer device with painting apparatus in terms of design, a grand mean of 4.43 which verbally interpreted as very applicable. This implies that the device layout and plan for fabrication are being followed, fabrication and materials of the device are being specified and measured accurately and packaging are well-covered or decorated with paint. In terms of capacity, a grand mean of 4.40 which verbally interpreted as very applicable implies that a total measurement of 1.50 meters in width, 2.00 meters in length and 2.80 meters in height with a load of 50 kilos also paint mixer device can operate 3 to 5 minutes with the capacity of 2 to 3 liters of paint for mixing color with approximate 2 person can use or utilize the device with 4 to 8 hours a day operation.

In terms of efficiency, got a grand mean of 4.38 which verbally interpreted also as very applicable implies that the device have a minimum of 5 to 10 minutes to assemble with a maximum of 1 person skilled/not skilled in the art with proper orientation, capable to mixed 5 to 12 liters or 3 gallons of colors in 1 hour a day with the span of 3 meters height to 4 meters wide concrete wall and effective 250 psi (pound per square inch) with 125ml epoxy primer paint inside the spray gun aluminum bottle cup in the maximum of 10 minutes while 3 to 4 hours using roller type brush in a span 4 meters concrete wall.

Acceptability of paint mixer device with painting apparatus in terms of technical specification and feature of the device

The acceptability of develop paint mixer device with painting apparatus considering its technical specification and feature of the device got a grand mean of 4.45 which verbally interpreted as very acceptable. This implies that fabricated with .04mm thickness by .50 cm by .50 cm metal tubular body framing and 1/4 thick marine ply board casing with two sliding

door and drawer type paint pad for roller paint brush, attached also are 2 1/2" caster wheel for ease of work got the lowest mean of 4.30 which verbally interpreted also as very acceptable. While, installed with 20 watts breaker, convenience outlet for compressor connected to switch on/off with 18 watts transformer and exhaust fan and #16 flat cord extension wire to be connected to 220 volts as main supply got a highest mean of 4.60 verbally interpreted as very acceptable.

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of the study, the following conclusions were drawn: The quality result of develop paint mixer device with painting apparatus in terms of utility, composition and portability have properly utilized for a specific purpose with properly welded parts, joints, removable paint mixer motor with lavatory sink, compressor and spray component and drawer type paint pad for roller paint brush for spray painting, roller paint brush and color mixing process. Moreover, the applicability of the device in terms of design, capacity and efficiency derived to a well-planned layout for fabrication, can operate both mixing of colors, spray painting process and roller type brush in wall painting for effective hands on activity in a period of time which will also benefit the consumer or end user. While acceptability of paint mixer device with painting apparatus are very acceptable for the whole process of painting through mixing of colors and spray painting with proper orientation of its technical specification and feature of the said device.

Based on the findings and conclusions of the study, the following recommendations are forwarded. Development of paint mixer device with painting apparatus is recommended to enhance color mixing and spray painting processes using 18 volts motor and to utilize some of its body parts for faster and more effective performance while doing painting and mixing process. Therefore, it may suggest that fabrication of the device will be more durable if material used will be aluminum tubular type framing for table, plain galvanized iron sheet for packaging or stainless sheet. Further innovation, includes using automatic computer system attach to the table covered with pull-up type cover for safety in operation. Further study is also recommended that other material except wooden framing, fibre optics or aluminium cladding and moulding should be utilized to create this tool. Further study is encouraged also to improve the features of the device that could be added or tested to enhance the design of the product.

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Development of paint mixer device with painting apparatus

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