

A Literature towards ongoing trends of automobile washing bay

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Abstract - The particulate problem in ambience is enlarging day by day and is likely to shoot up in coming years as long as of which the need of washing has been increased, At the same time the water shortage has been the measure issue over the years hence water recycling is the need of the hour considering the today scenario. Some other framework which are equally major from washing point of view is to reduce the time and that to with good standard finish. The main characteristics of this product which defined its distinctiveness was the ongoing trends in automobile washing bay which made it stand out with its competitors in the market. The tag line on basis of which we start working on the trends going upon automobile washing bay was 'Machine for Common Man' looking at the prices of automatic machines in the market we also want to make it economical to a common man who can also enjoy the wellbeing of automatic system without paying much penny.

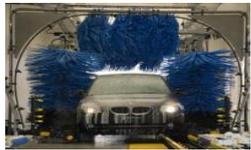
Key Words: Channel connecting two tracks, Tubular side and top frame assembly, Elbow, T-joint, DC motor, Nozzle, Flexible pipe, High pressure pump, Castor wheels

1. INTRODUCTION

Living within the 21st century the population is increasing day by day because the population increases the demand for transportation also increases. One in every of the key factor for the mode of transportation is road transportation, during which the use of cars and bikes are most preferred by number of individuals. Because the demand for cars and bike is increasing their number is additionally increasing which results in rise in maintenance work and the upkeep work includes different parameters like associated with engine work, body maintenance, tyres and washing.

The main objective of the project is to work in the field of the multipurpose automobile washing system. The washing of the vehicle is the type of maintenance work which can be provided interior as well as exterior. For exterior purpose the various kind of washings is employed, they're categorized as follow in table 1.1.

Table -1:

Sr. No	METHODS FOR AUTOMOBILES WASHING	FIGURES OF WASHING METHODS
1.	Automatic washing bay method in which the vehicle is in a stationary mode and there are washing machines and dryer rolls which moves back and forth around the vehicle.	 Fig 1. Automatic washing bay method [1]
2.	Tunnel washing method in which there is a conveyor belt to move the vehicle through a path of fixed washing mechanisms.	 Fig 2. Tunnel washing bay method[2]
3.	Hand automobile washing method in which you have to wash your vehicle using water with hands manually.	 Fig 3. Hand automobile washing method[3]
4.	Self-service washing method center which provides you coin operated system to wash the automobile using the pressurized jet washing pump.	 Fig 4. Self-service washing method[4]

In India conventional washing of car is typically preferred often to its low cost, work load and other parameters. Hand wash is best washing because during this the labor can have access over the parts which cannot be cleaned by automatic machine but it's certain drawbacks like it is time consuming, number of labor required is more, health problems with labor mostly skin related problems, wastage of water, pollution of environment, etc. The tendency of washing is changing and now every single thing is mainly based on the automation. The world is moving on a fast-track & that point plays a awfully important role; people want everything to be done within seconds without wasting much time & that automation is that the key to save time.

1.1 WHY WASHING IS NECESSARY?

The air quality index of cities have gotten worse day-by-day, in line with the report of System of Air quality and prediction and Research (SAFAR), the town air quality index is extremely poor within the recent times as compared to the previous year's stats, this shows that the standard of air within the city has slipped from the great benchmark to satisfactory benchmark within very short span of your time. the increase in air pollutants is principally thanks to rise in no. of vehicle. Pollutant, carbon monoxide gas and sulphur are released by vehicles which are to the pollution and increase in amount of stuff (pm). the subsequent is that the graphical report of Air Quality Index of Vadodara city.

Washing not only gives good look to your vehicle but also has scientific reasons. As pollution is on an increase there are various minute particles which are imposed on the surface of the vehicle, engine parts, lubricating parts, etc. This results in problems like engine cease thanks to improper chilling and affecting the lubrication system of the vehicle thanks to friction. In monsoons mud is stuck on mud-guards, under-chassis and body of car which ends up in increase in friction on tyres, vehicle jamming and affecting the aesthetic look of car to scale back such issues washing of car is critical.

Here there is a 'Varadom Technologies' company which builds separate automatic washing machine for bike and car wash. This machine has reduced the efforts required for manual wash and also the time required is move half. It had a positive response from customers but the strain of the market weren't satisfied because the end users expected one machine setup which can wash cars furthermore.

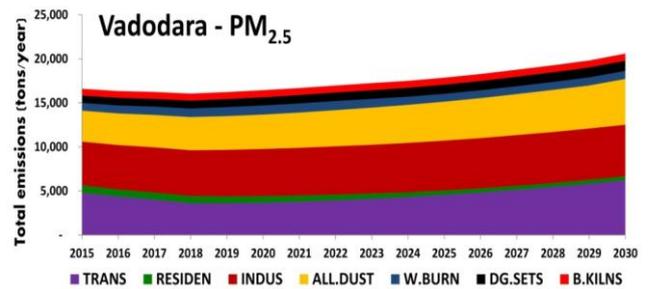


Fig 9. predicted emissions value of PM_{2.5} [9]

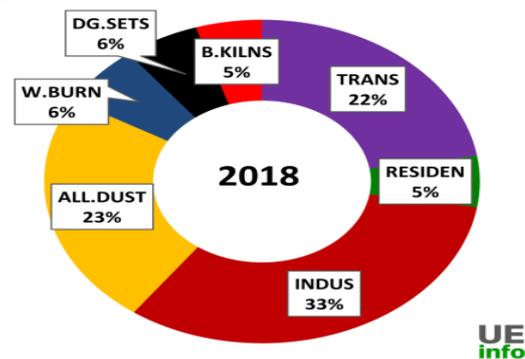
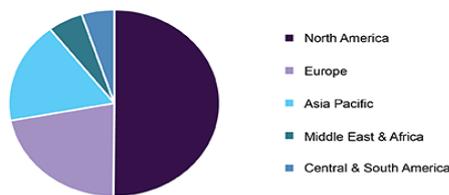


Fig 10. predicted emission value of PM_{2.5} in year 2018 [10]

1.2 GLOBAL MARKET REVIEW OF WASHING BAY

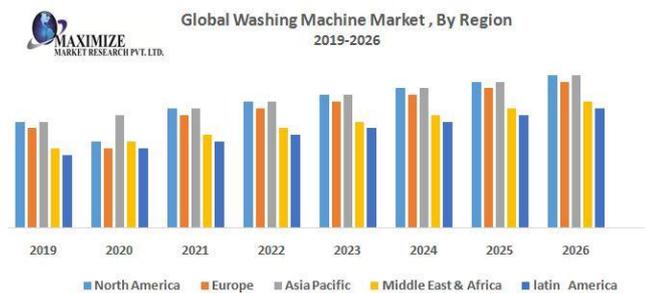
- Based on the application we can say that the automatic vehicle washing market can be classified into interior components and exterior components.
- The exterior components of vehicle are segmented and expanded at a rapid speed in the near future since the exterior components of vehicle are suspected to be more dirty and soiled that is for extreme environmental conditions.
- Based on geographical region the automotive vehicle washing market are to be segmented at North America, Europe, Asia pacific, Latin America and Middle East Africa.
- Key players operating in the global automotive vehicle wash market are Wash Tec, Istobal S.A., Autec, Inc, Coleman Hanna, CAROLINA PRIDE CAR WASH SYSTEMS AND SOLUTIONS and Wash world Inc.
- As shown in figure 10 and 11 the globally car washing service provided by different countries all over world. And also shown in figure 12 the future scope of U.S automatic washing bay market size is to be increasing day by day as per future aspect year.

Global car wash service market share, by region, 2018 (%)



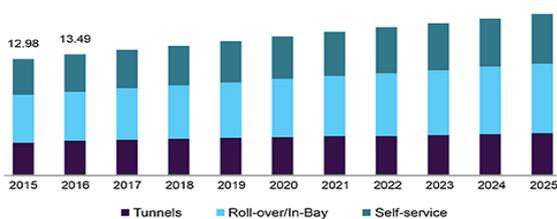
Source: www.grandviewresearch.com

Globally car washing service provided as shown in Fig. [11]



Globally automobile washing market as shown in Fig. [12]

U.S. car wash service market size, by type, 2015 - 2025 (USD Billion)



Source: www.grandviewresearch.com

Automatic car wash service of US market as shown in Fig. [13]

2. LITERATURE REVIEW

Massimo Lazzaroni, Stefano Ferrari, Loredana Cristaldi, Massimiliano Annoni [1] studied a technique for assessing both the working and healthy conditions of water jet- system nozzles. Data to distinguish both the functioning condition of the system and the nozzle. The collection of the power- signal samples for several nozzle types and working conditions allows us to build up a nozzle footprint database. Such a database constitutes the knowledge for the automatic recognition of the mounted nozzle and its working condition based on pattern- recognition technique.

Massimo Lazzaroni, Stefano Ferrari, Loredana Cristaldi, Massimiliano Annoni [2] studied a technique for classifying the working condition of a water jet system. It concludes that the classification of high pressure water jet system which is measured as the ratio between the available fluid-dynamic

power and the electric active power by monitoring the efficiency of the nozzle.

Minsung Choi, Seongyong Eom, Yonmo Sung, Kiyoul Noh, and Gyungmin Choi [3] studied about the uniform consequence forces on the sprayed aspect in order to enhance the multi-nozzle spray. Effect of the multi-nozzle positioning, nozzle pitch, and pipe pitch on the spray characteristics. The optimum design for multi-spray, hybrid-nozzle, arrangements should be adjusted with given operational control ranges, including nozzle type, nozzle pitch, and pipe pitch.

Levon Gevorkov, Valery Vodovozov [4] studied about the pumping system efficiency at throttling and speed control, method for the single-drive centrifugal pump head and pressure control. A new model for efficiency estimation in the centrifugal pump was proposed.

Muhammad Hamza, Junaid Najmi, Ahsan Iqbal Abbasi, Abdul Waheed, Muhammad Awais, Syed Irtiza Ali [5] studied about the Pump Selection, cost calculation, efficiency measurement, cost efficient pump, Iterative calculations. Hence, a cost- efficient pump belonging to a specific pump family was selected that fulfilled the project design requirements.

Nasir .S. Hassen, Nor Azwadi .C, Sidik Jamaludin .M, Sheriff [6] studied about the Static spray distribution, Spray patterns, coefficient of variation, nozzles types etc. One of the most important requirements on agricultural boom sprayers is to produce a uniform distribution of the applied chemical on the target area. A series of laboratory measurements were conducted to examine the spray uniformity distribution. In total, 8 combinations of nozzle type, angle and pressure were tested corresponding with 24 measurements for standard flat fan nozzles and even flat- fan nozzles.

Richard Taylor, Thomas Eagar [7] studied about the Austenitic stainless steel, Corrosion Failure analysis, Pipe Burst, Stress corrosion cracking, As a result, failures will continue to occur with the approx. cost and damage to property but reason and remedy for failure is simple by making design modifications under using basic engineering principles for the failure behind exposure of hoses.

Akash Srivastava, Sumeet Sekhar, Prayass Rai, Anusheen Nema Ayush, Pandey Roshan Jha, Arif Ayub [8] studied about the Welding joint, Arc welding, Bending moment of welding joint, Deflection, Universal testing machine. As a result we have performed various experiment for welding strength using different materials and at the end concluded some of the best welding joint.

3. CONCLUSIONS

Thus this illustration and review shows that it will help to perform ongoing automobile trends which winds up in high

quality conclusion and in a cheaper price. As well as it is user-friendly and capable to wash multiple automobile at a brief period of your time. Also need less personnel, time, no pollution and shows more advantages for ongoing automobile washing trends. This provides prototype technically sound, financially viable, operationally feasible and with an excellent usability. Future work are often done on applications such as water recycling unit, dry washing, renewable energy usage, option on automation etc for various automobiles.

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