



# Portable Car-Washing System

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## Introduction

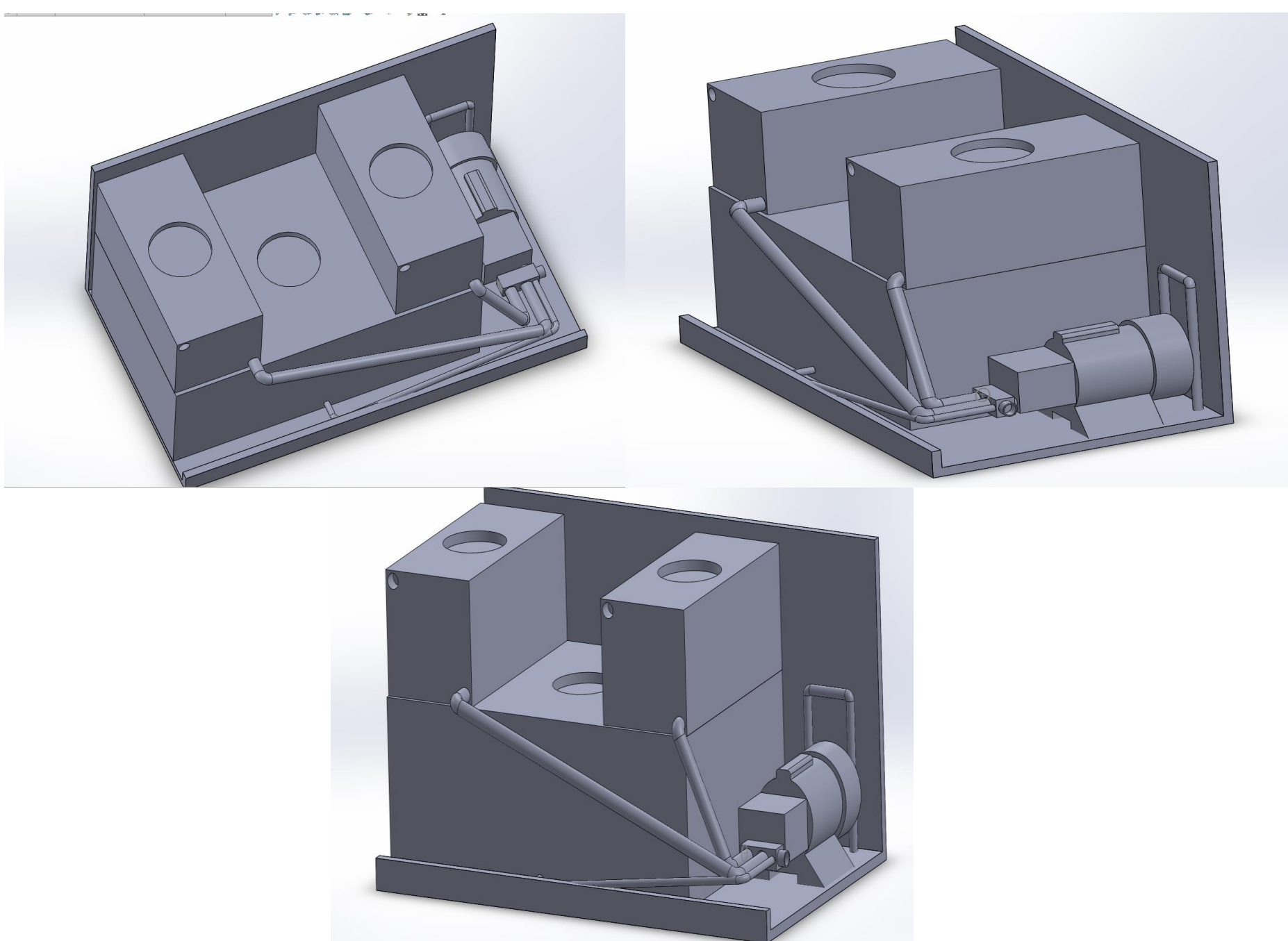
The Portable Car-Washing system was developed for the benefits of improving consumer focus. The system was designed to provide comfort, convenience, improve health, and durability to consumer vehicles. Many consumers face scenarios where their vehicles are being damaged by car washing companies. In fact, car wash companies are known to tear off antennas, side view mirrors, and front/rear bumpers. Also, harsh chemicals and low-quality car shampoo are being used at these establishments which eventually cause rust. These harsh chemicals can vary from all brands of industrial strength alkaline enhanced degreasing shampoo which leads to oxidation of the paint and corrosion. On the other hand, devices such as the Portable Car-Washing system are innovating a touchless car wash facility introducing a safer washing system.

## Background Research

For the creation of the portable car-washing system we conducted a thorough investigation of many car washing alternatives. Each mechanism studied has some components to make it fully automated or would still require the consumer to move/use. The most basic set-up for a self serve car wash includes a tank which holds a variety of chemicals. Following the tank, there is some tubing that runs directly to a pump allowing for the movement of fluid. This flow from the pump leads to a pulsation dampener which helps stabilize the flows and finally leads to the exit which can be an open hose or a pressure washer lance.

For the mobility portion of the system, we have decided that a 25-gallon water tank would suffice compared to the standard 55+ gallons used. Most of the research, whether it may have been a video or an article of the previous set up, explain how the 55 gallon was more than enough or even too much. The pump that will be used is a pump/motor unit with  $\frac{3}{4}$  horsepower and a maximum of 2.1 which would suffice the car washing objective.

## Design (Pictures)

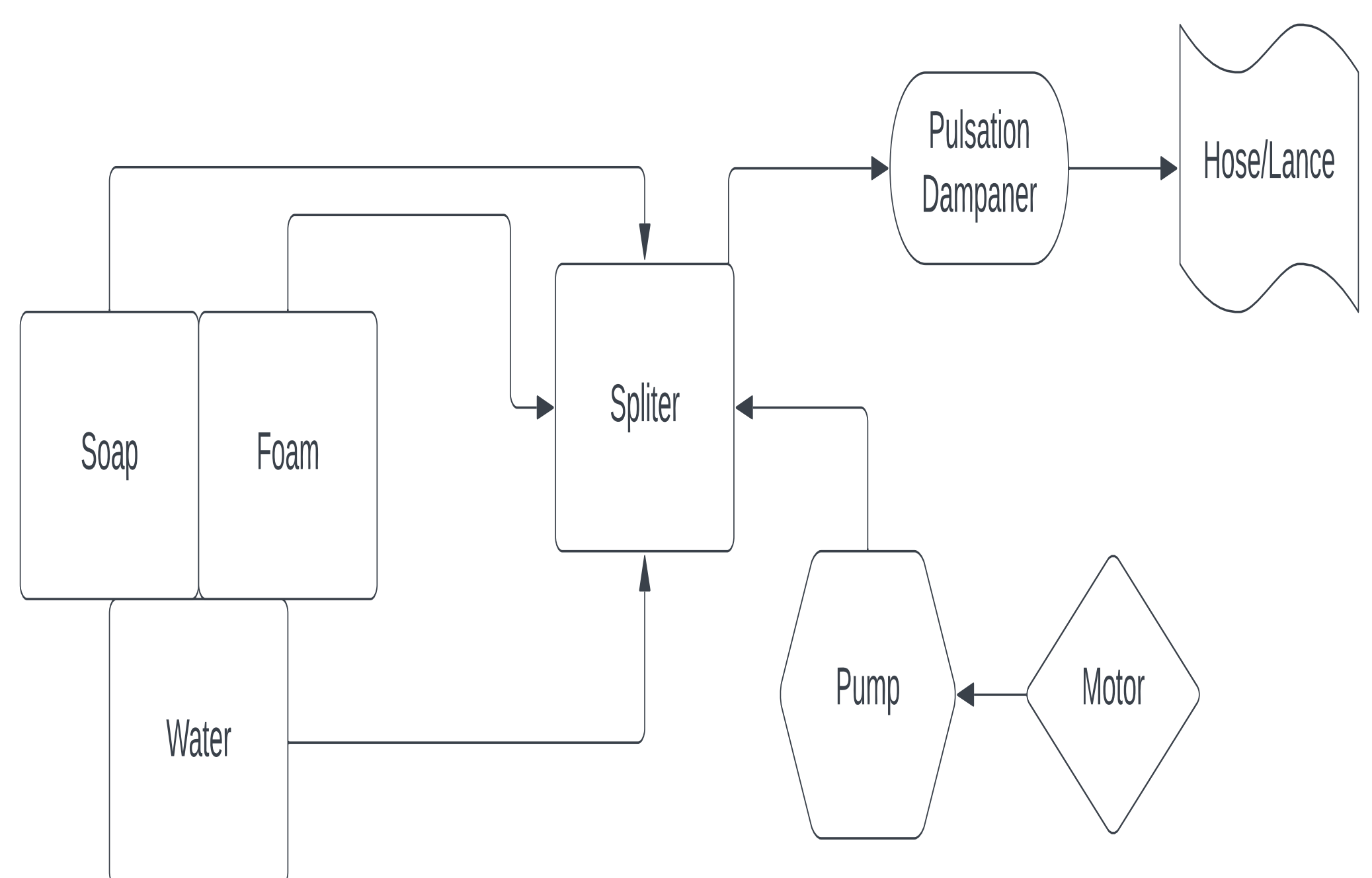


## Components

The components of the system are designed for a more efficient process of washing vehicles. The device contains 2000 PSI electric pressure washer, 55-gallon blue plastic barrel drum, hydrostatic test, pump, motor unit, sponges/ towel set, all season shampoo formula, wheels (4), foam gun blaster, brushes, nozzles, air compressor, air pump, hoses, guns, wands, and booms, water sandblasting kit, pressure gauge, compound gauge and car wash/polymer wax. The total cost for the components of this system is set at \$4,121.56. Consumer vehicles now have the opportunity to take advantage of high-pressure washing, microfiber towels, and high-quality paint protection such as all-season shampoo. The touchless washing system is less likely to cause damage and the most user friendly. The mechanical system is provided with 4 wheels and a 55-gallon blue plastic barrel.

The Portable Car-Washing system can be used at the convenience of a driveway, office, at the gym, or parking lot. The washing system also contains enough water for several vehicles.

## Schematic Flow Diagram



## Reference

- <https://ceramicpro.com/the-pros-and-cons-of-using-automatic-car-washes/>
- <https://en.wikipedia.org/wiki/Nozzle>
- <http://www.epowerwash.com/wp/archives/610> Trigger Gun Control & the Unloader\_ePowerWash
- [http://en.wikipedia.org/wiki/Hydraulic\\_pump](http://en.wikipedia.org/wiki/Hydraulic_pump) Hydraulic pump - Wikipedia, the free encyclopedia