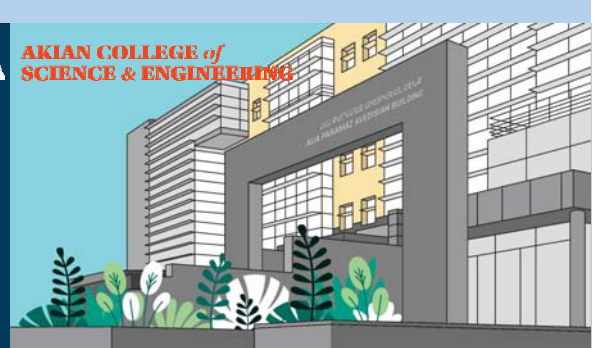


# Design of Piping System for Portable Compressed Natural Gas Station

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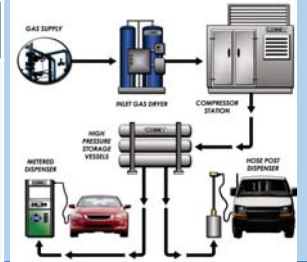
Software: Solidworks Year:2006



## Introduction

The Compressed Natural Gas (CNG) portable station is a complex system consisting hundreds of components. Its design requires careful schematics, 3D modeling, and drawings so that both physical and operational relations between components can be specified, analyzed, and checked. Another benefit of the 3D model is the possibility to reengineer the components and the system as a whole.

Routing cables and pipes is one of the challenging tasks in the design process of such systems. The chosen software should provide the opportunity to route piping and cabling, taking into consideration components' relation in terms of their operation and physical location. The routing is a special tool of Solidworks. It gives the opportunity to create the route via 3D sketching its centerline. Based on the specified parameters, the software generates pipes, tubes, or cables along the sketched centerline.



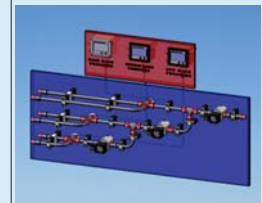
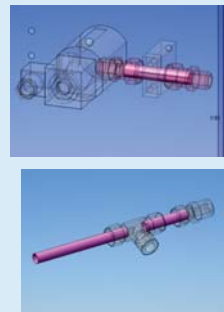
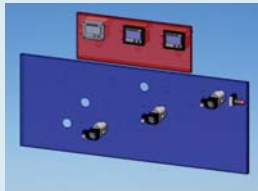
## Routing Module of Solidworks

The assembling starts with mounting panels and electrical and pneumatic hardware components, which are placed on the panel according to the initial layout. Their placement can be easily modified later. The 3D models of these component are usually provided by their producers and can be downloaded from their web pages.

The "Route on the fly" method is applied by filling the property manager windows. The start point of the route is defined by selecting the face of the connector. The routing parameters are defined by specifying the type of the tube, its diameter, length, bending radii, etc.

Each route needs start and end points. Depending on the design and mechanical constraints, like bending radius or minimum length of the path, the route connecting the two points may vary. The *edit route* toolbar provides a set of means to easily modify the route, split it, add fittings where needed, etc.

Below is the Priority Panel of the Station completed as a subassembly.



## Four Views of the Station

