

## A Flexible Multi-Platform 3D Virtual Product Configurator

Andrea Motta

Nobrandsolution s.r.l./ Motta Alfredo SpA, Cinisello Balsamo, Italy

### Abstract

At its core, the Taylormatic platform is a 3-dimensional virtual product configurator. It allows users to select customizable products from a virtual catalogue, which they can subsequently configure and customize to their liking. Configuration options include the selection of product components, their materials, as well as their colours. Taylormatic is not limited to specific product types.

Taylormatic can provide a very realistic 3-dimensional visualization of the configured product, with a realistic simulation of visual material properties. The end-result is a virtual product which can be viewed from all angles, up close in full detail, and which at the same time closely resembles the physical product. Users can therefore be confident that the product they configured will be what they end up purchasing.

### Multi-platform deployment

Taylormatic is a multi-platform solution which works equally well as an in-store experience or desktop application, as well as a mobile app on tablets, an application integrated into a new or existing website, or potentially even on games consoles. Taylormatic can be deployed where the customers are.

By making use of Unity3D – a very popular multi-platform 3D middleware solution – Taylormatic can be deployed to this wide range of supported platforms with a minimal need for dedicated per-platform development. It allows for Taylormatic to use a “develop-once, run everywhere” approach to its development in all but some specific cases, such as platform-specific add-on modules.

With Unity becoming available for an ever increasing number of deployment platforms - see <http://unity3d.com/unity/multiplatform> for more information - the potential reach of Taylormatic increases as well. The rapid development cycles and improvement of Unity ensures that Taylormatic can be consistently improved to make use of ever increasing graphics capabilities and provide increased realism and application performance. Careful consideration of asset generation can generally ensure that the visual experience is similar across all platforms, providing a uniform experience to the user.

### Asset generation and management

A virtual configurator depends on a large set of virtual assets. Of course there is all the 3D content and the associated virtual materials, but there is also a large amount of 2D assets used to generate the user interface of the application. Taylormatic relies on a (local) database which describes the various configurable products, and how these are organized within a collection of product categories.

### Asset Creation

Asset creation can follow a wide variety of different pipelines depending on the product type, as well as the 3D content that might already be available as a result of product design. Available data might require some adaptation to be made suitable for the Unity platform, especially with regards to performance considerations for mobile platforms.

A concrete pipeline can be established after an inventory of available data, the desired and required end-result, as well as available expertise. Establishing such a pipeline will focus on the selection or development of the necessary tools, and the optimization of a pipeline to keep the workload between raw data and final Taylormatic asset as short as possible. Generation of 2D content for user interfaces relies on simple collections of images which can be the result of any image editing software package.

### Asset Management

To support the management of all assets, as well as its organisation in a catalogue structure including the relevant UI elements, Taylormatic uses a custom asset management plugin for Unity. The asset manager allows designers to add their assets to the earlier mentioned product database, to define its exact configurability, and to link all relevant options to the specific UI elements for those options.

Once a product has been included, the plugin supports the export of all relevant asset files for a specific platform. These asset files, as well as the generated database, can be subsequently deployed on the chosen build platform and are what drive the application.

### An extensible platform

With a virtual product configurator as Taylormatic's core, Taylormatic can be extended with a variety of modules, depending on the particular application scenario.

Purchasing the configured items is of course one of the more important features of any such application in an e-commerce scenario. To achieve this, Taylormatic can be extended with an e-commerce module which either hooks into an existing e-commerce system available for the brand, or a module could be created in combination with a new e-commerce back-end for new brands.

For an in-store fashion retail solution, such options as an automatic 3D body scanner and measurer might be of use to suggest specific garment sizes to the user. An extension to Augmented Reality, in which the customer can see the configured garment overlaid on a video stream of themselves, could turn Taylormatic into a true virtual mirror. Combined with a gesture input module, the user can interact with the system as well as the 3D models through a number of different hand gestures, providing a fun and modern interface.

While Taylormatic is a multi-platform solution, the per-platform applications could be linked via a common profile, allowing users to maintain and share information between applications. Measurements taken in a store could be stored within a user-profile and retrieved on the web or within an app, to still provide similar size advice. One could even consider storing a configuration history, to retrieve past configurations, or to pick up the configuration process from where the user stopped the last session.

In many scenarios shopping is a social experience. To bring this to our virtual platform as well, Taylormatic can be extended with an integration into the various social networking platforms such as Facebook, Google+, or whichever platform is relevant to the customer-base. One could think of such functionalities as sharing the configured item on one of these networks, allowing friends or other contacts to provide feedback.