Incorporating 3D Modeling & Printing Capabilities for Universal Image Viewer

Overview

3D printing technology is reshaping healthcare in multiple ways – from producing customized implants & prosthetics to medical models & devices have revolutionized patient care. Majority of healthcare data today is in the form of images such as x-rays, MRIs, & CT scans.

These medical images need to be segmented into multiple regions to create patient specific, highly accurate 3D models. Image segmentation is often challenging in the imaging-to-modelling process & requires expert techniques & best technology practices to create accurate models.

Client Requirement

The client is a leading provider of imaging information management & software services. Its universal image viewer enables viewing of medical images across departments, thus enhancing patient care.

They needed it to also support 3D printing workflows. This would empower healthcare professionals to collaborate & create 3D models for complex patient cases & effectively share them with suitable 3D printing bureaus for printing.

CitiusTech Solution

- Set-up a strong engineering team with expertise in Angular, .NET & **medical imaging (DICOM)**
- Designed & developed the client & server-side modules & services to develop accurate 3D printing workflows
- Built segmentation capabilities for end users to **create / edit** (Interactive Segmentation, Brush, Eraser, Smoothing, Hole Filling) 3D anatomical models for diagnostic & other medical use
- Developed capability in the universal image viewer to **export digital 3D models** to a centralized 3D printing service bureau for review / post-processing / printing
- Established an **automation framework** to test the developed features & workflows

Technology Stack:

- Angular 6, TypeScript, RxJS, C#, C++
- .Net Remoting, ASP.NET Web API
- .Net Framework 4.5, Fovia 3D Toolkit

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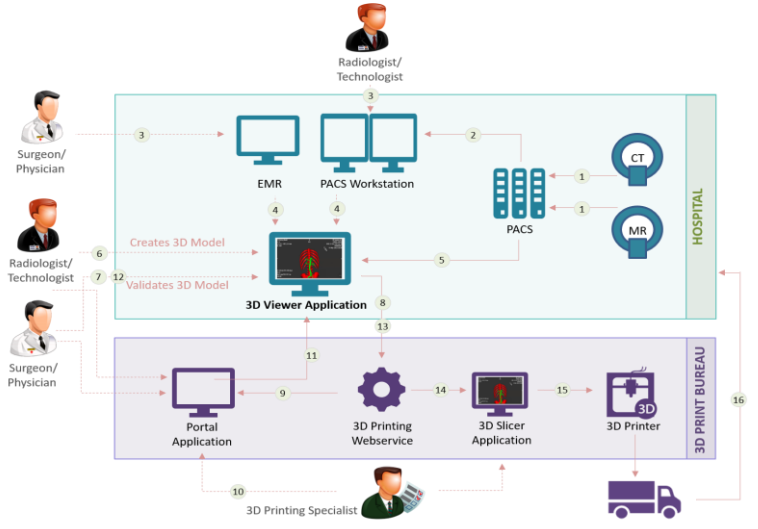

Solution Schematic - Image Segmentation for Medical 3D Printing

Value Delivered

- Developed **image segmentation capability** in the medical image viewer for physicians and physicians to create custom implants & prosthetics
- Provided **end-to-end testing** to ensure the 3D printing workflows performed as per expectations
- Accelerated the development process to release the application **within a year**

About CitiusTech

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