

PROTOTYPING - PROJECT VERIFICATION: 3D PRINTING OF PATIENT MONITOR CASE

COMPANY

Emtel is a Polish supplier of medical equipment specialized in the production of patient monitors and defibrillators.

PROJECT

Creation of a new patient monitor model case prototype in 1:1 scale with the use of 3D printing technology.

GOALS

1

Cost reduction at the stage of creating models and prototypes

The production cost of one patient monitor case made by external companies is about 500 EUR. Additionally, at the stage of forming the prototype, it is necessary to produce around 2 or 3 versions of the same model.

Reducing production costs of models up to 90%. The cost of a single 3D print is around 50 EUR.

2

Speed-up of project processing at the stage of models and prototypes verification

The production process of models and prototypes made by external enterprises takes minimum one month. Ownership of a 3D printer allows quickly make a designed model in 1:1 scale with satisfactory accuracy.

The prototype of the patient monitor was received in 5 days which reduced expectation time up to 25 days.

3

Project verification through the installation of target components in the 3D printed casing

During the production of the case to patient monitor FX3000P, the expected precision was not worse than 0.2mm, especially in the mounting brackets.

3D printouts allowed to verify all critical dimensions of the project, it enabled to implement proper corrections.

4

Improvement of documentation to injection mold production

Fast prototyping of new patient monitor model through precise verification of project assumptions, ergonomics, installation and validation of dimensions was only able due to the use of a 3D printer.

The final details obtained with the use of injection technology did not require any corrections.

PROJECT DATA

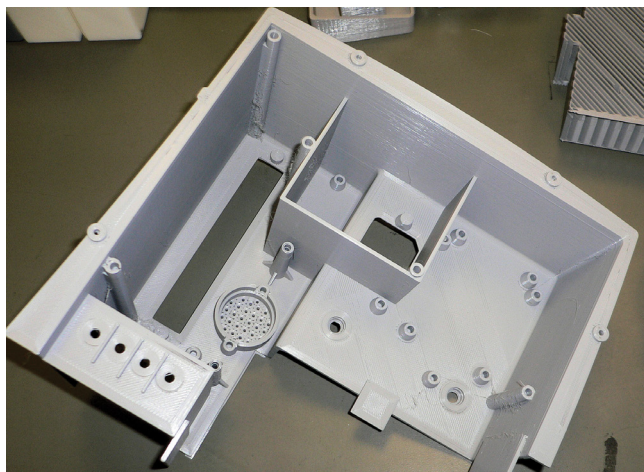
3D print	The case of patient monitor FX3000P	
Use	Evaluation of ergonomics, dimensions, and accuracy of prototype	
Material	PLA (used 1.6 kg / item)	
3D printer	3DGence ONE	

	Milling	3D printing
Cost	30 days	5 days
Time	470 £ per part	47 £ per part

The patient monitor casing prototype was made with the use of a 3D printer.



3D printout of the left side from the case of patient monitor FX 3000P.



During verification of the 3D printed model, it turned out that Emtel can also apply printouts for production of several details, which are used in the new patient monitor.

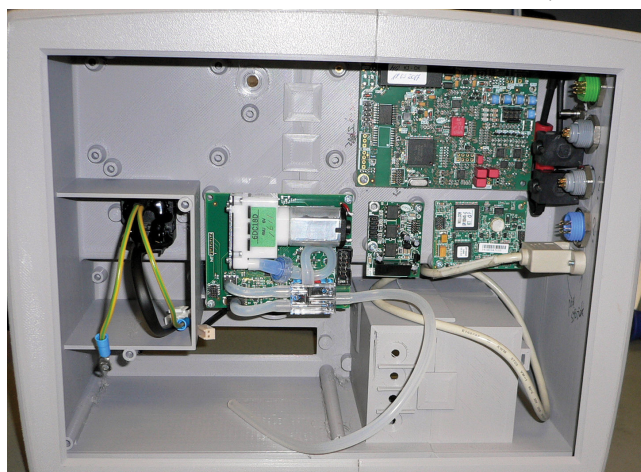
Visualization of the patient monitor case in the software - 3DGence Slicer.



On the left - a printed housing model.
On the right - the molded casing from injection.



Dimension and assembly verification.



3D printers allow to make a design model in 1:1 scale, very fast, with satisfactory accuracy, enable verification of all dimensions, ergonomics, and assembly of internal components.

In a very short period of time we managed to introduce a new FX300P patient monitor into production.

Wojciech Przybycień, technical engineer at Emtel



3DGence

3DGence is a Polish manufacturer of 3D printers specializing in the development of new technological solutions and the implementation of 3D printing in industrial enterprises.

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