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Fully implementation and HIS integration of a paperless ECG solution to all the services of Son Llatzer Hospital (FHSL)

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1. Introduction

FHSL is a public hospital integrated in the Balearic Healthcare net that has been provided with the latest technologies for a better management and care obtaining an automation of all clinical and administrative processes.

The main aim of this project is to obtain a fully paperless ECG solution and its integration with the Hospital EPR taking advantage of our TIC platform (PACS, Integration Engine, Wireless LAN, EPR, Mobile Devices, Pocket PC, Tablet PC etc) using the market standards : SCP, FDA-XML and DICOM Waveform for ECG storage and J2EE for web programming.

The project development had has as main objectives or purposes:

1. Tool and procedure development to 100% satisfy the requirement of nursery staff and nursery collective in the workflow of performing an ECG.
2. Tool and procedure development to 100% satisfy the requirements of physicians in the workflow of retrieve and visualize ECG.
3. Fully EPR integration.
4. Scalability, usability, adaptability and standardization to allow integrating it with the primary care centres, ambulances and the rest of the hospitals of our healthcare net.
5. Obtaining a procedure based on standards to work with Digital Electro cardiology independent of the ECG device's manufacturer and independent of the used viewer. Each hospital will have the independence to work with ECG's devices based on standards and in each moment Physician's staff will have the independence to select the desired ECG viewer.
6. Obtaining a procedure and workflow (Hardware & Software) to be the hairy of a global repository of the Balearic Islands population, accessible from every hospital, healthcare centre, mobile vehicle and so on of our Healthcare net.

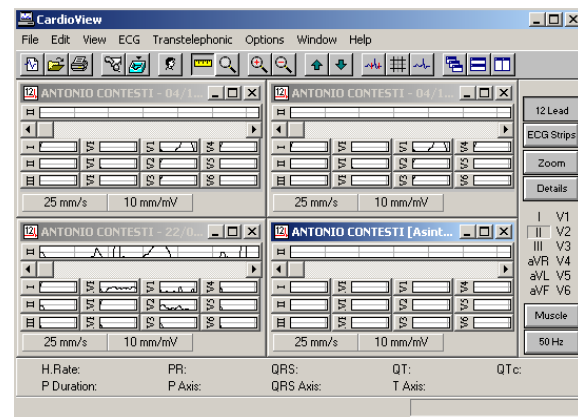
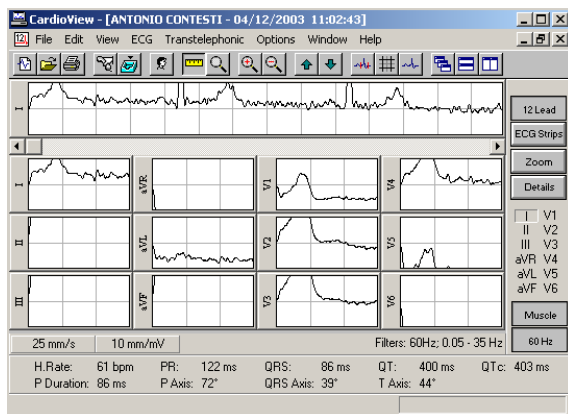
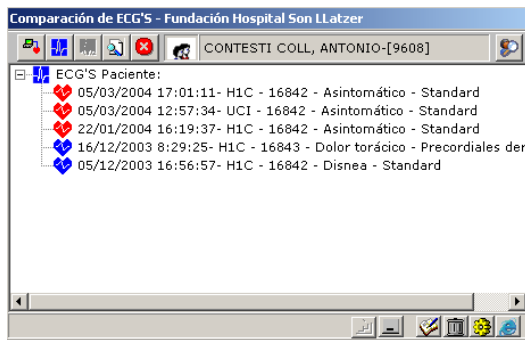
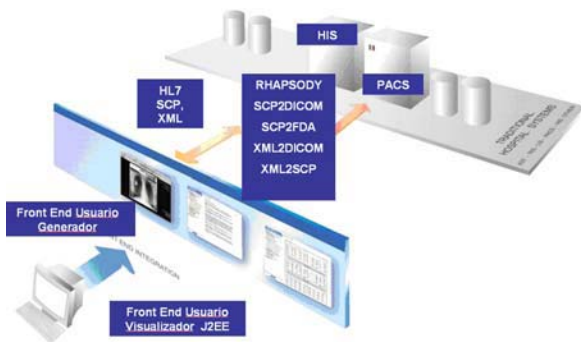
2. Material and Methods:

The development had been done in different steps:

1. Analysis and workflow study of the different scenarios: Cardiology, Emergency, UCI, Nusery stages, Scheduling Rooms, Operating Room ...
2. Analysis and study of the different ECG formats that seems to become an standard: FDA-XML, SCP and Dicom Waveform.
3. Analysis and communication study of the different ECG devices in the market.
4. Development of communication components independent of the ECG's manufacturer to allow to obtain the raw data ECG information.
5. Development of conversion modules of the raw data to the mentioned standards and storage modules in our EPR.
6. Development of different programs to obtain ECG with an easy to use interface according to the physicians and nursery specifications, configurable for each service and for different devices: PC, Pocket PC ...
7. Development of a viewer fully integrated with the EPR according with the physicians specifications (web enabled, compare option etc)

3. Conclusions

We have obtained a fully implementation of a paperless ECG solution for capturing, storage, easy viewing and interpretation of ECG data.



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