

CONCEPTUAL DESIGN OF DEVELOPING A MOBILE APP FOR DISTRIBUTED INFORMATION SERVICES FOR CONTROL SYSTEMS

(DISCS)*

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ABSTRACT

Due to involvement of different engineering disciplines, tools and methodologies in design, construction and operation of an experimental physics facility (EPF), an integrated information system is needed to efficiently manage data. DISCS is a framework developed to address this need which includes multiple modules and services that provide web-based management tools and APIs to access EPF related information stored in various data-bases like Controls Configuration Database (CCDB) and Cables Database (CDB). In this paper we propose a conceptual design of a mobile application that can easily be used by technicians working at EPFs to access their required data. The proposed application would use QR code and Augmented Reality (AR) to enhance user experience. It can also be used as a means to create a collaborative environment by providing social networking features helping technicians to share their knowledge from different facilities worldwide.

AUGMENTED REALITY

Using the QR code labels, we can show cables information on the screen and the user can do several actions like finding detailed information by pointing to the real cable and the application would detect the event and display the corresponding information.

SOCIAL NETWORKING

This application can create an opportunity for technicians and employees from different experimental physics facilities to share their information and knowledge.

Each employee who installs this application will have a professional profile visible to other in house staff and also available to others from various facilities worldwide.

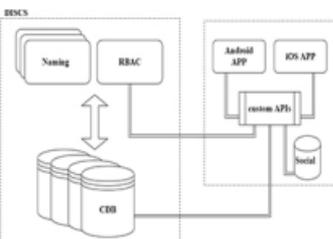
E-LOGGING

By connecting the application to an available e-logging system, technicians can report a fault or malfunction and describe the situation. They can also record a voice message instead of writing the report to save time. These reports then will be stored at the e-logging data-base.

QR SCANNER

By labelling each cable with a QR code that contains the cable identifier or number we are able to use a QR scanner in the proposed application so that the cable information can easily be retrieved from CDB.

APPLICATION ARCHITECTURE



LOCATION BASED SECURITY

Most of the smart phones and mobile devices are equipped with GPS. This can be used as a complement for RBAC to provide location based security.

We can track the movements through different facility areas and also we can restrict some features to work only in the facility.