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XMRBS: A Web Based Facilities Scheduler

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Many microscopy facilities have the need for a system that allows access to several resources to be scheduled among large numbers of users. Ideally, a microscope facilities scheduler should include the following characteristics: (i) ease of use, (ii) web based access, (iii) low maintenance, (iv) ease of integration and adapted into the information systems architecture of the facility, (v) free of charge to academic users. We have adapted a web based system, that was originally developed primarily for reserving conference rooms, for use in scheduling resources for a multi-user microscopy facility. The system is closely integrated with a relational database that manages user access and allows us to monitor the use of the resources.

Our scheduler is based on the MRBS (Meeting Room Booking System) [1]. This system is available at no cost, is very reliable and has a large user base. MRBS also uses the PHP hypertext preprocessor [2] and the MySQL [3] relational database, which made it an attractive option for us as these are the tools we have been using in developing a database management system for storing images acquired from an electron microscope [4].

To provide support for our facility, which has multiple user groups, we have made the following extensions to MRBS:

- ?? A web based tool has been developed to manage user information and access.
- ?? The user information is stored in the database.
- ?? User authentication is managed through NIS (network information service) and the database. This feature allows user passwords to be in synchronization with other computer systems in the facility.
- ?? Users are identified with a particular research group. This allows each group to be managed using an individual set of rules. For example, each group is identified by a unique color in the scheduler, which enables fast visual assessment of the overall allocation of the resources between groups.
- ?? Usage is managed and monitored using weighted time units that are based on the desirability of a given time slot (for example, 1st shift, 2nd shift, etc.)

The basic data elements tracked for each entry in the calendar are shown in FIG 1. The relationship between the tables used in the database to support the system is shown in FIG 2.

We currently use the scheduler to support 4 transmission electron microscopes, 2 film scanners and a variety of ancillary equipment (carbon evaporators etc.). The user base contains approximately 50 users spread between 5 main research groups. Over the past 6 months, the system has proved to be very reliable, easy to maintain and extremely easy to use. Reports from the system are used to directly generate billing data

Our extensions to MRBS, called XMRBS, are publicly available at http://ami.scripps.edu.

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References:

[1] http://mrbs.sourceforge.net/
[2[http://www.php.net
[3] http://www.mysql.com
[4] Fellmann et al., (2002) Journal of Structural Biology. In press.
[5] This work was supported by the National Science Foundation (EIA-0296013).

Description:	FEI service call. Shutter installation.
Room:	Microscopes - CM120
Start Time:	12:00:00 PM - Wednesday 20 February 2002
Duration:	5 hours
End Time:	05:00:00 PM - Wednesday 20 February 2002
Unit(s):	5.00
Created By:	Bridget Carragher bcarr@scripps.edu
Group:	AMI
Last Updated:	09:41:59 AM - Wednesday 20 February 2002

FIG. 1: Example of some of the key elements tracked in scheduling system

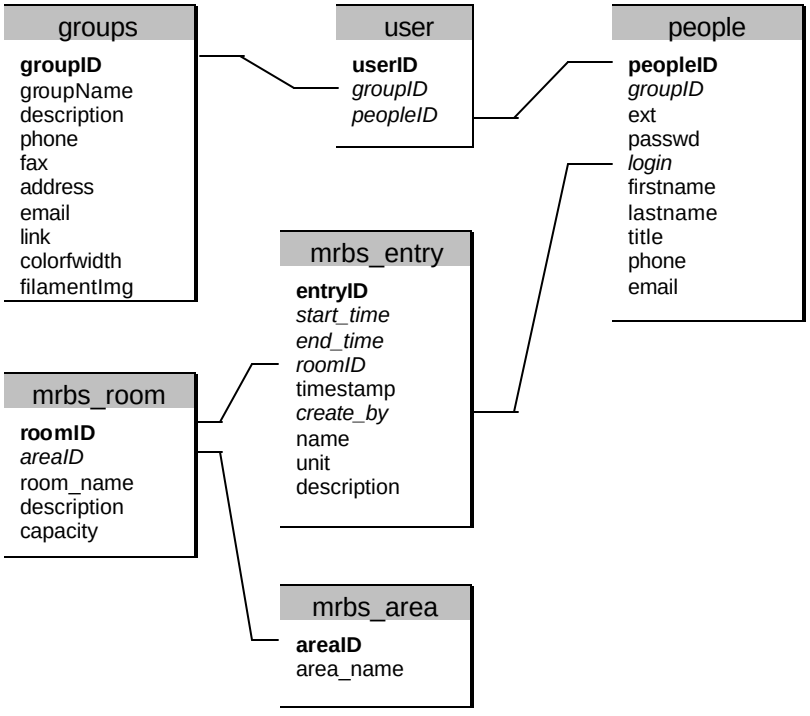

FIG. 2: Database table structure used to support the scheduling system

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