



PianoTracker

Instrument Management System

Team: TEAM

Will Fleming as wfleming

Henry Mason as DocGok

Keith Bodin as ruhavingfun22

Leo Baghdassarian as leoport

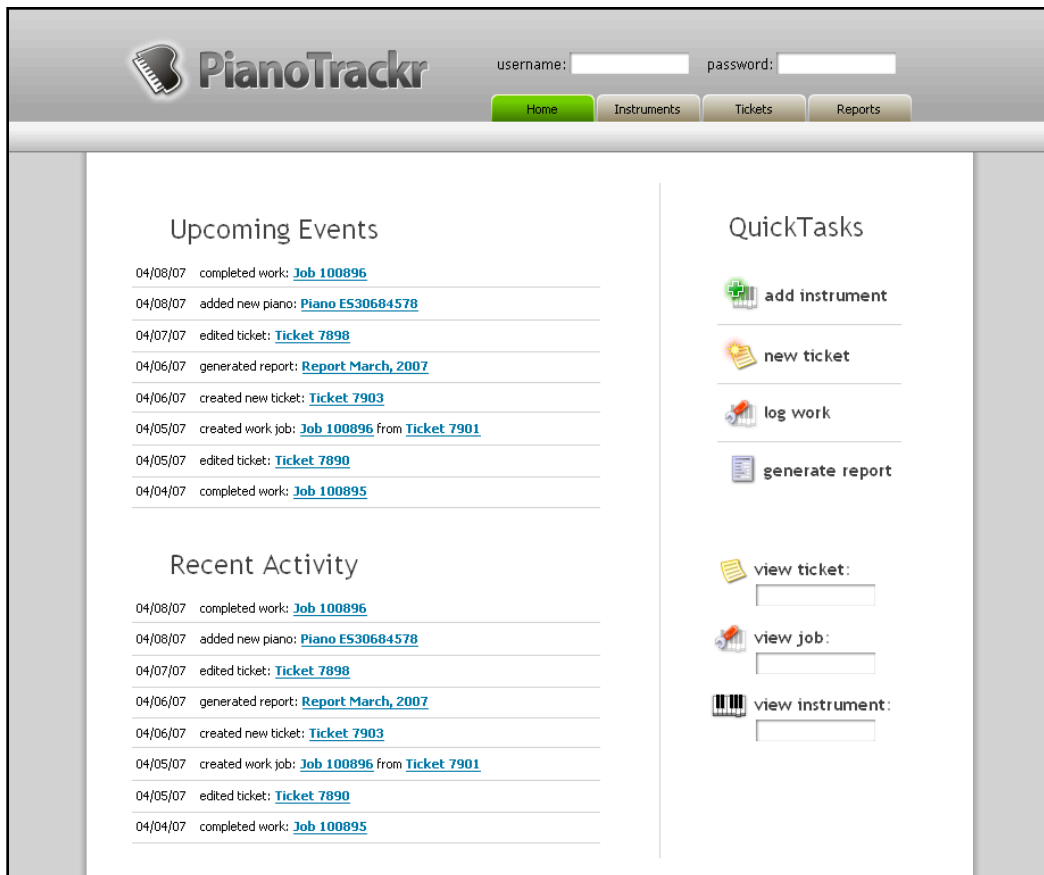
Design Overview

Executive Summary

PianoTrackr enables piano technicians to keep track of and report on a myriad of data relevant to their jobs in one compact, easy to use application accessible from any browser.

Capabilities

PianoTrackr is an innovative new system that will greatly simplify and streamline the way that instrument repair technicians will manage their work tracking system. This system is designed to help a piano technician perform the routine record-keeping aspects of his or her job as efficiently as possible. From the home page a list of instruments, new requests for work to be done, filing a report of work completed or generating a report on work previously recorded are all one click away.



The image shows a web application prototype for PianoTrackr. At the top, there is a header bar with the PianoTrackr logo on the left, a username and password login area in the center, and four navigation buttons (Home, Instruments, Tickets, Reports) on the right. The main content area is divided into two columns. The left column contains two sections: 'Upcoming Events' and 'Recent Activity', both displaying a list of recent actions with dates and links to specific jobs or tickets. The right column contains a 'QuickTasks' section with four buttons: 'add instrument', 'new ticket', 'log work', and 'generate report'. Below these are three input fields for 'view ticket:', 'view job:', and 'view instrument:', each preceded by a small icon.

PianoTrackr username: password:

Home Instruments Tickets Reports





Upcoming Events

04/08/07	completed work: Job 100896
04/08/07	added new piano: Piano E530684578
04/07/07	edited ticket: Ticket 7898
04/06/07	generated report: Report March, 2007
04/06/07	created new ticket: Ticket 7903
04/05/07	created work job: Job 100896 from Ticket 7901
04/05/07	edited ticket: Ticket 7890
04/04/07	completed work: Job 100895

Recent Activity

04/08/07	completed work: Job 100896
04/08/07	added new piano: Piano E530684578
04/07/07	edited ticket: Ticket 7898
04/06/07	generated report: Report March, 2007
04/06/07	created new ticket: Ticket 7903
04/05/07	created work job: Job 100896 from Ticket 7901
04/05/07	edited ticket: Ticket 7890
04/04/07	completed work: Job 100895

QuickTasks

-  add instrument
-  new ticket
-  log work
-  generate report




-  view ticket:
-  view job:
-  view instrument:

Fig 1. Home Page prototype

The heart and soul of PianoTrackr, of course, is the ability to track pianos and the work done on pianos. To this end, a technician can quickly access a comprehensive and powerful list of all pianos he is responsible for. From this list of pianos, adding a new piano or viewing the instrument details of an existing piano are both one click away. If the

technician is looking for a particular piano, he can quickly filter the list by typing text queries to zero in on the pianos of interest. For example, typing “practice room” would instantly filter the list and only show pianos located in a practice room.

The image shows a web application prototype for PianoTrackr. The header includes the PianoTrackr logo, a login status "Logged in as Don McKechnie", and navigation tabs for Home, Instruments (active), Tickets, and Reports. The main content area features an "Instrument Filter" section with a search bar, dropdown menus for Type (Grand), Location (CU 7789), and Option A (Stuff), and checkboxes for "Check Boxes are cool" and "Radio Buttons" (Yes, No, Maybe). Below this is a "Results" table with columns ID, Description, Location, and Last Update. The table lists eight pianos. To the right of the table is a "QuickTasks" sidebar with links for add instrument, new ticket, log work, generate report, view ticket, view job, and view instrument, each with an input field.

ID	Description	Location	Last Update
BG06658	Baldwin Grand, parlor	IR 4829	04/08/07
SU36278	Steinway Upright, console	GG 8998	04/08/07
DU06846	Bösendorfer Upright, spinet	CU 7789	04/07/07
DU04678	Bösendorfer Upright, studio	PWN 998	04/06/07
SG04754	Steinway Grand, baby	IR 4829	04/06/07
BG06458	Bechstein Grand, semi-concert	GG 8998	04/05/07
BU04458	Bechstein Upright, professional	CU 7789	04/05/07
B506353	Bechstein Upright, professional	PWN 998	04/04/07

Fig 2. Piano List page prototype

Once the technician has found the piano they want to look at in more detail, they can go to the detailed information page for that piano. This page will provide the technician with an at-a-glance overview of all relevant information about that piano and a log of the work that has been recently logged for that piano. From this page, the technician can easily edit the details of the piano or log new work done on that piano.

Having accurate information about the work done on pianos is at least as important as the pianos themselves, so we will work hard to make sure the capabilities for logging work in PianoTrackr are second to none. When logging work, piano technicians will first select the particular category that their work falls into (a tuning, a voicing, a repair of a hydration system, etc.) and will then be presented with a detailed input form tailored to the information relevant to the type of work they selected. Once saved, a work log will be quickly accessible from the page of the piano it was done on or from a general page devoted to finding archived work entries. Of course, if a technician makes a mistake on

a work record, fixing it is as easy as finding the record and changing the mistaken information.

The image shows a web application prototype for PianoTrackr. The header includes the PianoTrackr logo, a user login status "Logged in as Don McKechnie", and navigation tabs for Home, Instruments (active), Tickets, and Reports. The main content area is divided into three sections: Instrument Details, Assigned Tickets, and Recent Activity. The Instrument Details section for Steinway 544921 shows its location, type, year built, age, and a table of key specifications. A notes section contains placeholder text. The Assigned Tickets section lists two tickets with their dates and types. The Recent Activity section shows a log of system events. A right-hand sidebar titled "Instrument Tasks" contains buttons for editing details, creating new tickets, logging work, and generating reports, as well as search fields for tickets, jobs, and instruments.

Base	C	RP	CC	A	U	U/G	SM
80	1.3	0.4	0.6	1.3	0.8	0.7	0.1

Assigned Tickets

- 04/12/07 [Ticket 7955](#) - Type: Repair
- 04/11/07 [Ticket 7922](#) - Type: Location Change Request

Recent Activity

- 04/08/07 completed work: [Job 100896](#)
- 04/08/07 completed work: [Job 100856](#)
- 04/07/07 edited ticket: [Ticket 7898](#)
- 04/06/07 generated report: [Report March, 2007](#)
- 04/06/07 created new ticket: [Ticket 7903](#)
- 04/05/07 created work job: [Job 100896](#) from [Ticket 7901](#)

Instrument Tasks

- [edit details](#)
- [new ticket](#)
- [log work](#)
- [generate report](#)
- view ticket:
- view job:
- view instrument:

Fig 3. Piano Detail page prototype

Reports are a regularly occurring and vital part of many businesses, and piano maintenance is no exception. PianoTrackr comes with built-in reporting functionality so that a technician can easily and rapidly generate and print or export the reports that are relevant to their job. The first version of PianoTrackr will come with a handful of common weekly and annual report types.

Taking a cue from common issue-tracking systems used by corporations large and small, PianoTrackr allows both users of the system and customers (that is, the users of the pianos) to file requests for work to be done, which are called tickets. Technicians using the system will then be alerted to these tickets, and can respond appropriately by doing the necessary work and marking the ticket as fixed, assigning the ticket to another technician if appropriate or, if the ticket is an irrelevant or duplicate request, mark it as such and ignore it.

The planned first version of PianoTrackr will make any piano technician's life easier by focusing on providing a core set of features that are incredibly simple and intuitive to

use, but there is always room for improvement. Please see the section at the end of this paper for a description of some of the kinds of features you could expect from future implementations of PianoTrackr.

Technical Details

PianoTrackr is a web-based application written in PHP with a MySQL based data store. The PHP code is written based on a custom-built object-relational mapping <http://en.wikipedia.org/wiki/Object-Relational_Mapping> library and a similarly custom-built model-view-controller pattern <<http://en.wikipedia.org/wiki/Model-view-controller>> based application framework. Using self-built, lightweight libraries in conjunction with a well designed relational database schema to store the application's data allows us to rapidly develop an application and focus on its interface and how a customer will experience it, rather than getting mired in the details of implementation.

The object-relational mapping library will allow a developer to define PHP objects that will intelligently self-define certain behaviors based on the schema of a given database table. Support for relationships between object and database transactions will be included.

The MVC framework will use the classes defined using the object-relational mapping library for models. Controllers will be defined as PHP classes with methods acting as actions. Views will be stored as Smarty <<http://smarty.php.net>> templates.

Deliverable Stages

1. The core of the system is tracking of pianos and work done on pianos (tunings, voicings, etc.), so this will be the primary feature of the first released version of PianoTrackr. User management with different levels of privileges will also be completed, as this is critical to ensuring the security and usefulness of the application. Support for filing and tracking "work to be done" tickets will also be completed. At least basic reporting capabilities will be completed, with a more robust and customizable reporting system to follow in a later release.
2. Data migration from previous systems (e.g. FileMaker databases) could be made available as a purchasable service in the future. This would almost certainly be highly valuable to any customer with large quantities of data stored in a previously used system.
3. An enhanced reporting module, with more reports and more user-customizable aspects of reports. The ability to export the system's data could also be added in case a user needs to do some very complicated analysis that is beyond the built-in abilities of the system.
4. An accounting and budgeting module would be added, allowing users to store and edit accounts and budgets tied to the rest of the system.
5. A module for tracking stock and tracking items on loan would be added.

Depending on customer needs and preferences, milestones 2–5 could be rearranged so that the customer could get the features wanted most fastest.