ARTNAB
ART CATALOGUING MOBILE APPLICATION
AND FOUR FUTURE UPDATES THAT BUILD OFF THE CATALOGUING
PLATFORM
A Project

Presented to the faculty of the Department of Art and Communications Studies
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Special Major
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by

Christo J. Reynen

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2016
ARTNAB

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AND FOUR FUTURE UPDATES THAT BUILD OFF THE CATALOGUING

PLATFORM

A Project

by

Christo J. Reynen

Approved by:

Phil Hitchcock, Committee Chair

Dr. Raymond Koegel, Second Reader

Date
Student: Christo J. Reynen

I certify that this student has met the requirements for format contained in the University format manual, and that this project is suitable for shelving in the Library and credit is to be awarded for the project.

__________________________, Department Chair
Chevelle Newsome, Ph.D Date
Abstract

of

ARTNAB

ART CATALOGUING AND MOBILE APPLICATION
AND FOUR FUTURE UPDATES THAT BUILD OFF THE CATALOGUING
PLATFORM

by
Christo J. Reynen

Problem

Art cataloguing and generating a record for provenance is an essential aspect of establishing value in art, and consequently artists. The aim of ArtNab is to create an all-inclusive mobile application that circumvents cumbersome multiple platforms in establishing a catalogue of work. It has come to light that ArtNab alleviates the problem on multiple levels, of creating value in the art world. Such problems relate to the four versions of my application and are as follows: Cataloguing for provenance and insurance purposes, bringing awareness to public art, alleviating the need for expensive hardware for museum tours, and finally aiding unknown artists in gaining notoriety.

Sources of Data

Data was collected using the developed software V1.0 and exported in .pdf format as intended. To date over 75 catalogue archives have been created through the use of the ArtNab V1.0 software application.
Conclusions Reached

Through the duration of this project, I have discovered that ArtNab sufficiently alleviates many of the inherent problems for creating provenance, notoriety, and value of art and the artists who create these works. By streamlining the process of creating an art catalogue and in turn provenance, fewer errors occur, time is saved, and collection value is substantiated and often increased. It is conclusive that there is an improved, more precise, more efficient, and more secure method than currently in place, and it is ArtNab.

___________________, Committee Chair
Phil Hitchcock

___________________
Date
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DEFINITIONS, ACRONYMS, AND ABREVIATIONS

1. PDF-Portable Document Format. a file format that provides an electronic image of text or text and graphics that looks like a printed document and can be viewed, printed, and electronically transmitted. (Google, 2016)

2. XML- Extensible Markup Language. a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable. (Google, 2016)

3. SMAC-Sacramento Metropolitan Arts Council. The Sacramento Metropolitan Arts Commission was established in 1977 by a City Ordinance and a County Ordinance. The Sacramento Metropolitan Arts Commission (SMAC) is a public agency devoted to supporting, promoting and advancing the arts in the region. Funded by the Sacramento City and County, SMAC provides funding to local artists and arts groups; promotes the arts through marketing, outreach and education initiatives; provides resources to support and increase regional arts education activities; and serves as a community partner and resource. (Sacramento Metropolitan Arts Council, 2015)

4. CSUS-California State University Sacramento (California State Universtiy, 2016)

5. GPS- Global Positioning System. GPS is a space-based navigation system that provides location and time information in all weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites. (Google, 2016)
6. APP-Software Application. A self-contained program or piece of software
designed to fulfill a particular purpose; an application, especially as downloaded
by a user to a mobile device. (Google, 2016)

7. IOS-Internetwork Operating System. an operating system used for mobile devices
manufactured by Apple Inc. (Google, 2016)

8. Smart Device- A smart device is an electronic device, generally connected to
other devices or networks via different wireless protocols such as Bluetooth,
NFC, WiFi, 3G, etc., that can operate to some extent interactively and
autonomously. (Google, 2016)

9. Web 2.0- the second stage of development of the World Wide Web, characterized
especially by the change from static web pages to dynamic or user-generated
content and the growth of social media. (Google, 2016)

10. Hashtag-is a type of label or metadata tag used on social network and
microblogging services which make it easier for users to find messages with a
specific theme or content. Users create and use hashtags by placing the hash
character # in front of a word or unspaced phrase, either in the main text of a
message or at the end. Searching for that hashtag will present each message that
has been tagged with it. A hashtag archive is consequently collected into a single
stream under the same hashtag. (Wikipedia, 2016)
HARDWARE REQUIREMENTS

IOS 8.1 running on an Apple Iphone. Iphone must have 5.4 MBS of free space on the hardrive. The screen rez is scaleable to all iphone screen sizes. The disk supplied with the project file on it is a DVD and should be accessed by a DVD drive on any computer. The actual application is in prototype stage and can be downloaded through the APP stores Testflight application. The App store will have the full version available for download after approval.
INTRODUCTION

STATEMENT OF COLLABORATION

Building ArtNab was a team effort. From concept to fruition, it took several parties to hone the idea and create the application. The concept was honed through discussions with Shelly Willis the director of the Sacramento Metropolitan Arts Council as well as Professor Phil Hitchcock my advisor at CSUS, and the Library Gallery Director. Through these discussions it became apparent there was a process currently employed that could be improved with the right software. The application evolved from the broader idea of art recognition and once honed, was directed towards the niche of art cataloguing to serve both catalogue and insurance purposes. After further research, it was apparent that this niche was the best version to build off. The future versions are described in this report as updates to the current insurance aimed version. After sketching out a wire frame of the App, and my intended functions I encountered Dragonpine Developers, a student group out of the University of Nevada Reno. While I created the concept, design elements for the interface, all the text content, and all the graphics using the Adobe Suite, Dragonpine brought the static pages to life and made them function how I intended. This required programming knowledge that I am not versed in. While the programming brought the idea to life, the idea itself was derived from years of interest in the arts and collaboration among art professionals. My role in regards to developing the concept was equivalent to an architect designing a building under construction. To continue with the construction analogy, I also played the part of the builder when it came to putting together graphics, layout, and content of the site. Dragonpine also acted as builder by putting my schemata of parts into a working prototype through programming in Objective-c.
PURPOSE

ArtNab is an all in one camera-spreadsheet-email application. Its purpose is to uncomplicated the process of creating a catalogue of arts and antiques. The creation of this application is meant to exploit the functionality of the “smartphone” and the “smartphones” many accessible tools. Mainly the App incorporates the ability of the mobile camera tool to become a media and identification enabler. The App assembles five processes into one place and eliminates all the extra time spent downloading, formatting, exporting, and emailing. Essentially the App acts as a “Swiss Army knife” for cataloguing, everything you need in one place. The application was intended for a universal spectrum of users in the public, private, and academic arenas. The goal of the application is to provide users with the ability to more easily and efficiently catalogue and send these catalogues in packets of organized information to interested parties.

PROBLEM

There are inherent problems that occur when creating catalogues of art and antiques. These problems lead to greater problems more insipid in the larger field of art. Namely creating and maintaining value of collections of arts as well as maintaining value and interest in the art world in an increasing digital age. Provenance, “a record of ownership of a work of art or an antique, used as a guide to authenticity or quality (Dictionary, 2016)” is the industry standard for creating value in art. Many collections are undervalued because of their lack of provenance. Furthermore, growing collections can often go un-catalogued, suffer from lack of provenance and appraisal, because of their lack or incomplete catalogue. This problem may occur because the current process required to get your artwork photographed and sent to the appropriate entities, requires some digital communication shrewdness. This was the case for an art collection for the William Madison Randall Library, University of North Carolina at Wilmington.
There was no consistent effort to document the incoming art until the University Librarian and the University Archivist (within the library staff) launched an effort to record rudimentary information, take digital images, and create a simple administrative database (later named the Randall Treasures Access Database). The University Librarian foresaw the eventual possibility of a Web-based tour showcasing the library’s art collection, but at this time the database served no curricular, scholarly, or otherwise academic purpose, and was simply an administrative record retention inventory. (Benedetti, 2004)

It is relevant to look at the cataloguing issues that Libraries incur when addressed with atypical library assets such as three-dimensional artwork. It is possible to draw a parallel between the problems libraries encounter while cataloguing items and the same catalogue issues that arise when documenting private art collections. Namely, these problems are organization, access and delivery of information, and overall documentation technicalities. The fact that valuable artifacts are recognized in a variety of forms these days only adds to the complexity of cataloguing. Esther G. Bierbaum proposes that collectibles are indeed worthy of catalogue in all their shapes and forms. These include objects such as sculptures, wooden models, specimens from natural history, globes, and nearly anything intrinsically collectible. Due to the current guidelines of the Anglo American Cataloguing Rules 2nd edition (AACR2) items such as these have become, “routinely cataloged in conformity [with other library materials]; the result was bibliographical equality.” (Bierbaum, 1989) These types of objects have proven to be challenging for Institutions and individuals alike. In fact, collections are often overlooked just due to the daunting task of photographing and formatting these collections into a concise catalogue that lends itself to search-ability, and accessibility. The ability to digitize images for display on the Web has become a critical factor in providing access to visual materials. This new generation of access calls for some kind of cataloging, whether in the traditional library sense, or in the form of the most basic data elements, such as artist and date in non-standard form. Although there is more and more library literature studying the explosion of digitization projects involving library and archival materials (even within academic libraries), few involve cataloging individual images in the library catalog. This is due in part to the fact that most digitization projects involve collections of materials, which are typically not cataloged on an item level basis.
While individual images are typically digitized within a separate Web site or database, they are rarely included in the library catalog. (Benedetti, 2004)

As stated by Benedetti, even large institutions with significant resources have avoided cataloguing artwork due to the inherent difficulties of documenting visual assets. As the World Wide Web has influenced libraries to take account for artworks as valid cataloguing assets, the fact of the matter is that it is a difficult process that is slow to evolve. If our institutions are slow to account for visual assets and collections it is natural to assume that collectors, galleries, and artists are also limited by the difficulties of cataloguing artwork.

It is necessary to examine the process to understand why both large and small entities are daunted by the challenge of documenting a collection. Foremost, it is essential for catalogued artwork to have the necessary descriptive information in a neat and organized fashion. Currently the process starts with a photo from a digital camera, from there it is downloaded into a computer or hard drive. The photo is then imported into a spreadsheet program like Microsoft Excel, where all pertinent descriptive information is applied. The file is now saved and exported to a file format more easily
accessible, like .pdf. In order to transmit the data an email application must be opened, a new message must be opened, and then the file must be attached and sent to the appropriate entity whether it be gallery, museum, or insurance company. The process is depicted in Fig.1. While working at the Sacramento Metropolitan Arts Council, there was always countless data entry that was often weeks if not months behind schedule. Endless data entry that combined multiple platforms and different media reading devices were blatantly cumbersome and overly time consuming. Libraries are faced with this same challenge and that is why their literary catalogue is often far more thorough than their artwork catalogue, if they have even developed one. At SMAC, when entering large amounts of data that involved imagery, the process of uploading to the hard drive, opening in other applications, and exporting in email friendly formats truly became overly laborious and time consuming. In the Findings section of this document, I will describe the benefits of using the ArtNab software over what is currently available to catalogue artwork.

While interning at SMAC, I realized the communications tools available in our smart mobile devices could accomplish all these things listed above on one device within one program. All that was needed was the software, and ArtNab was conceived out of this problem.
BACKGROUND OF THE STUDY

After working in the art world and interning for organizations like the Sacramento Metropolitan Arts Council it has come to my attention that an art recognition or art cataloguing program would be beneficial to many art professionals and collectors alike. After looking into the field I realized there was no all-in-one smartphone application that was geared towards the real time informational recognition of art. After interning with the Sacramento Metropolitan Arts Council, I realized that the forum of Public Art might be the best place to aim my App. Key factors were, that there were records of all commissioned public works, and that generally public art did not move after its commission. Initially applying facial recognition software to art was the intent. The intention at the time was to develop a program or App that would decipher shape, line, color, depth, and size to automate information gathering for art. This is a technology widely used in security professions and adapted to the medicine field for anatomical identification. Upon further exploration and thought, it was apparent that since public art did not move, a GPS based App was a better solution than pattern recognition. The end goal became more tangible at this junction and SMAC’s director Shelly Willis took an interest. SMAC cooperated by allowing the current database of public art in Sacramento in an excel spreadsheet to be used in the project. This was particularly exciting due to the airport renovation and the incredible caliber of artists selected to receive a $700,000.00 stipend each, to create work inside the airport. It became clear that a GPS driven App could be used in airports across the country to deliver information for art, culture awareness, and tourist purposes. At this time, many ideas regarding the application came to fruition. Using GPS would allow the App to effectively function in museums, enable artist promotion, and propel the App into an interactive web immersion experience or Web 2.0 (discussed later on in this document). With the excitement of all these useful versions looming, it became clear a strategy would be essential. It also became evident a base version would be necessary to build off. This base platform version was realized
through the eyes of the independent artist and collector. It was through these eyes that another niche became apparent, art cataloguing to assist in determining value. It was evident that private collectors and artists are often unfamiliar with the importance of cataloguing work to create value. Having created, sold, traded, and acquired many paintings, I know the importance of maintaining records. Large professional collection firms, auction houses, and galleries employ people to keep careful track of collections and create catalogues. By keeping careful track of collections, these firms create a value applied to the work and substantiate a date to begin an appreciation schedule and provenance record. The new goal was to provide a tool that would allow both individuals and professional entities to maintain and create a value for their collections by using a cataloguing version of the App. This App became the basis for future versions. After developing and using the App myself, I am now more inclined to understand the timeframe of ownership that may affect capital gains taxation or the appreciation schedule that an insurance company may require, or a collector would be interested in. This has truly increased my knowledge of my collection and has made a formal argument for increased value of the collection. Furthermore, through the process of putting together a functioning App I have honed my strategy for producing future versions that will be described below.
SYSTEMS REQUIREMENT ANALYSIS

As previously stated the purpose of the App is to simplify the process of creating a catalogue of arts and antiques. As described in the Problems section above, currently cataloguing large volumes of art is overly time consuming and because of the tedium can lend itself to the creation of errors. Later in this report I will expound upon how the App effectively achieves the goal of creating art catalogues faster and more accurately. Essentially the success of the project is based off the ease of use, the speed of entry, and the accuracy of entries also contributing to speed and efficiency. The Findings section of this report will bring to light the success of the project based on these criteria. The scope of this project was to create a working Application that functions on smart mobile devices to catalogue artwork. The project aims to develop a platform that can be improved upon with later versions that incorporate more of the available technology. Developing a working prototype V1.0 was the goal for partial satisfaction of an MA degree at CSUS. I was able to conceive, design, and generate all content, while I incorporated Dragonpine to program all the content I created. Later upgrades include versions that work to accomplish specific but related Art world goals. These versions are described in the Future Versions section of this document. The purpose, scope, objectives, and interface were all carefully strategized and calculated before the collaboration with the programmers occurred.

The design of the software and interface was meant to be uncomplicated. The interface had to take into account the small screen sizes of a mobile device where the App will function. I carefully limited the onscreen information to only the essentials. This was drawn out in the Wire Frame included in the Appendix B and eventually given to the programmers. The user profile of the App had to be considered when I made the design choices. Most Art collectors and Gallery owners are not of the youngest most tech savvy demographic. The most likely user of this App would fall between the ages of 35-65 and have basic mobile computing knowledge. With this in mind I designed the App to be self explanatory and user proof. By user proof I mean that the user could not hit any buttons
or categories that would damage their stored digital collection. Furthermore, by designing input fields that only handle numeric values and aren’t able to input alphabetic data, it makes it nearly impossible for entry errors. I will describe my design considerations in more detail in the App Description Section of this report.

The App was developed and tested on an IOS Apple Iphone. Currently the only platform the app will work on is Apple’s IOS. IOS 8.1 running on an iphone is required to run the App along with at least 5.4 MBS of hard drive space for the operating software. The assets attained in the App will require hard drive space as well. Over the course of testing small errors were identified and addressed. The first was that if you did not have your camera enabled within your settings the App would not work. This was remedied by going into settings and turning on the camera after reading the error message. The camera is essential for the Application to work, it is the cornerstone of the App and will not be effective without it.

Another error that occurred was caused by the Location services not being enabled within settings for the ArtNAb app. Without Location services enabled the App would apply a null value to the Location data entry box. When saving the file the App would attempt to populate the null value into the array for the database. The database cannot accept null values and it would immediately cause a crash. As important as Location services are to the effectiveness of this App, I also wanted it to work well for those who did not want to use Location services. Dragonpine was able to remedy this by making the App apply an empty blank instead of a null value when it could not automatically populate a GPS coordinate because GPS was disabled. Currently, if the user decides to not allow location services the App will run with the option to leave the field blank or apply a manual location in the form of an address. No further errors were encountered during the initial tests including over 75 Collection Assets.

Because the App is localized on the users phone, security was not a major concern. Apps that require an internet connection are more likely to be compromised of data and cyber attacks. That said the App incorporates Apples Sandbox security system. This keeps other Apps from procuring data and information from this App and vice a
versa. Sandboxing the App limits the privileges of your App to their intended functions and nothing more.

Illustration 2 Sandbox Security Diagram

Figure 2 is a representation of how Apple’s Sandbox security system sequesters your application to its particular functions and limits access to other system resources and data. Only resources and data necessary to operate are accessible. One concern was access to the user’s photos and the permission to access. In this case the App will work with or without permission to access the user’s photos. Even with access to the user’s photos the App only works in one direction. This direction is from App to photos, not the other way around. The user has the option to click a “save to camera roll” button after clicking the photo (Fig. 5). The App cannot incorporate or access any of the user’s current photo files. When opting to “save to camera roll” the asset will be saved as a photo file with no accompanying data. This is an addition to mainly act as a backup to the archive that can be used as any regular photo would be used, rather than a complete informational archive in the selected format of .PDF or .XML. If the user options to not allow permission to the camera roll, all data is stored within the App and the option to produce a regular photo backup will not be available. This is entirely a preference of the user and the App will function properly without this permission granted.
SOFTWARE APPLICATIONS DESCRIPTION

INSURANCE V1.0

Version 1.0 (current working version) has a sole focus of working with Insurance companies to create an easier archiving and cataloguing system. ArtNab performs the function of an all in one visual data collection and archiving system. It allows the user to effectively first take record of a collection’s asset by accessing the smart phone's camera, then input all pertinent data including underlying GPS location coordinates, and finally export them to a commonly used spreadsheet or portable document format. Assets are added to any collection created and then easily exported or emailed to any interested party. Both appraisers and insurance companies now have easily accessible .xml or .pdf spreadsheets that will improve the ease of their respective duties.

I will proceed by describing the process of cataloguing and sending an art asset by using examples from actual screenshots. In this section I will not only describe the process, but also touch upon the design and functionality choices made. The image organization and accompanying description is congruent with the actual navigational path within the App. Fig. 2, an actual screenshot, presented below is an example of the opening page for the app. This image was created in Adobe Photoshop and Adobe Illustrator. I have become intimately familiar over years of commercial marketing, graphic design, and web design with this software. I had a few different concepts for this graphic and felt it was important to convey the right message when entering into the application to set the tone. This concern was born out of a background in communication studies and the understanding of the impact a visual image can have on a users focus and attention span. I put a great deal of thought into the design of the App. This image and how it would lead users into the interface was no exception. The image visually implies the collection and transportation of digital media in a rapid and efficient
manner, exactly what Artnab accomplishes. The rest of the application is less graphic reliant and focus’ on functionality primarily.

Illustration 3 Loading Screen Shot
After the loading screen, the user has a basic screen (Fig. 3) that is intended to be intuitive to use. It simply activates the smartphone's camera lens and incorporates the

*Illustration 4 Home Interface Screen Shot*
point and click feature of the camera. There are only two available functions on this screen. The button in the middle captures the image, and the three lines on the bottom left take you to your collection catalogue (Fig. 4). Once the target asset is clicked or photographed using the middle button displayed in Fig. 3 a new screen with two icons appears (Fig. 5). These icons depicted in Fig. 5 are a down arrow representing save to camera roll, and a plus sign, which gives you the option to save to a new collection or an existing one. The main goal here was to design something effective yet not overly complicated. A large concern that went into the development process of this app was to make it user proof. In other words, the user cannot cause damage to an existing collection, or ruin any saved data or assets. For example a user can hit either of the buttons on this screen and the results are self explanatory, a photo is saved, or your artwork is added to an old or new collection.
Illustration 5 Collections Catalogue Screen
Illustration 6 Add to Camera Roll, New Collection, or Old Collection Screen
An example of a collection would be “home”, “antiques”, “5301 Longley Blvd, Reno Nevada, 89511”, or “Office”. The sequence of creating and naming a catalogue is
depicted in Fig. 5, 6, 7. After selecting a new or past collection to add the work into (Fig. 6), a screen appears that enables the user to implement all pertinent data (Fig. 10/11).
By either selecting a new collection or an existing one, the following page will always be the data entry screen Fig. 10/11. If you select an “Existing Collection” you will be routed to the screen depicted in Fig. 4 to select a Collection.

On the data entry screen shown in Fig. 10 and Fig. 11, pertinent data can be entered. The data entry screen was carefully designed to utilize effective web 2.0 technologies aimed at ease of use, search ability, increased efficiency, and GPS tracking.

The first of these technologies are the incorporation of hashtags. By incorporating hash tags, a user can quickly locate a file solely based on a descriptive identifier entered during the data entry phase (Fig. 11). So if a user cannot remember the artist's name or title he may be more likely to remember the subject matter, medium, or the art movement, abstract expressionism for example.

The second adaptation of an improved user interface is aimed at increasing both speed of data entry and accuracy. This improvement to the traditional method of data entry is the incorporation of the scroll wheel picker (Fig. 8). Using the scroll wheel picker is significantly faster than traditional methods for entering in dates. There are also less chance of errors when using a scroll wheel picker due to its predetermined values. Because of this increased efficiency I chose to incorporate the scroll wheel in as many of the numeric entry points as possible. I chose not to use it in the value input boxes due to very large values (>1,000,000) being tedious to scroll up to.
Figure 9 Dimension Scroll Wheel Picker

Figure 10 Year Selector Scroll Wheel Screen
The third incorporation of advanced smartphone capability is the incorporation of GPS. GPS is a beneficial feature because it automates the process of filling out the artwork location. This is a large improvement of performance and accuracy as it is not available to a typical cataloguer using a point and shoot camera. The ArtNab user does not have to type or write in the address, it is generated through GPS. Once the user activates location services for ArtNab within the settings of their phone the App applies the exact geographic coordinates of the location where you took the photograph of your artwork asset. When you click on “view location” button in your catalogue (Fig. 11) an exact coordinate and address appears. The GPS function will assist in identifying a permanent work of art exhibited in a public place, future Version 1.1. I will describe this version in depth in the Future Versions Section of this document. After saving the entry, the user can view the items in a gallery like view (Fig.11) by selecting the desired collection (Fig. 4). The user can also choose to export the file in .pdf or .xml. These file formats were chosen due to their accessibility, popularity, and functionality. Because of the .pdf file types popularity and functionality it can be utilized through many of the iphone’s most common functions such as message, copy to ibooks, add to notes, copy to dropbox, mail, print, and copy. This universality is extremely convenient and beneficial to the ArtNab user. Figure 13 is an Info Graphic I developed to display the overall process described above. It includes directional arrows to depict the progression from one screen to the next. As described above the graphic shows the culmination of the entry being able to be shared within all of the iPhones standard sharing methods. This Info Graphic is very closely related to the Wire Frame I developed at the beginning of the design process, also viewable in the appendix of this document.
Illustration 12 Data Entry Input Screen Shot Continued
<table>
<thead>
<tr>
<th>Collection Asset Screen Shot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michael Rosner</td>
</tr>
<tr>
<td><strong>Robama</strong></td>
</tr>
<tr>
<td>Value: $500</td>
</tr>
<tr>
<td>Medium: Silkscreen on U.S. Currency</td>
</tr>
<tr>
<td>Purchased: 2007</td>
</tr>
<tr>
<td>Created on April 19th, 2007</td>
</tr>
<tr>
<td>Tags: #Obama#print#currency</td>
</tr>
<tr>
<td>View Location</td>
</tr>
<tr>
<td>A. Rogone</td>
</tr>
<tr>
<td><strong>King Louie</strong></td>
</tr>
<tr>
<td>Value: $12000</td>
</tr>
<tr>
<td>Medium: Acrylic mixed m...</td>
</tr>
<tr>
<td>Purchased: 1998</td>
</tr>
<tr>
<td>Created on April 19th, 1997</td>
</tr>
<tr>
<td>Tags: #Mixedmedia</td>
</tr>
<tr>
<td>View Location</td>
</tr>
<tr>
<td>Christo Reynen</td>
</tr>
<tr>
<td><strong>Two ex racers timing...</strong></td>
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<tr>
<td>Value: $1000</td>
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<tr>
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</tr>
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</table>
Illustration 14 Info Graphic Depicting Entire Process
FINDINGS

After cataloguing 75 works of art and antiques it was apparent the program works as blueprinted. The program turns large collections into easily transferable packets of information. Its automation of the five-step process under one interface umbrella greatly increases the efficiency of data entry. To prove this, I clocked my speed to use the app and to use the traditional process to get an art data entry into .pdf form and email it to a recipient. When using ArtNab I was able to complete the process in 62 seconds. Using the traditional method of a point and shoot camera, card reader, uploading to a folder, importing into Microsoft Word, entering in data, saving as a .pdf, importing into mail, and finally sending (Fig.1), the process took five minutes and eight seconds. This is truly a noteworthy difference in performance. It was not just the fact that the app was all in one, but also that it incorporates scroll wheels to input in dates that are much faster than typing in dates and more exact. The time accounted using the traditional method did not factor in data entry fatigue, or the errors that incur due to fatigue. Although the findings prove a substantial increase in efficiency, this increase would certainly be multiplied if entry fatigue were analyzed and incorporated as well. The specific difference of two hundred and forty six seconds for one entry equates to a 500% increase in speed. This is two hundred and forty six seconds for every one entry and twenty four thousand and six hundred seconds for one hundred entries or the equivalent of nearly seven hours. In a thousand entries using this program can save an entity or individual nearly two weeks of data entry labor (seventy hours), proving to be both time and cost effective. This type of streamlining would be useful for both professionals and private collectors. Speed is one factor of improvement over the standard method, but organization from systemization is another factor to declare. Having a system in place like ArtNab predicates fewer mistakes and easier accountability. With these findings, I have discovered this App creates a useable document, in a clear format, which is highly efficient. Using this across the disciplines of art would only improve cataloguing and organization. Please see the data entries attached at the end of this document for a clear depiction of the organizational data.
FUTURE VERSIONS

AIRPORTS V1.1

Version 1.1 will focus on improving cultural awareness in public arts. This and subsequent versions will be released as updates to the existing platform. The Sacramento Metropolitan Art Council has provided me with the database of airport artwork and has verbally agreed to promote my application inside the newest terminal in the Sacramento Airport. The first update of the application functions by utilizing the GPS coordinates of the public art that is permanently placed. The application will still archive and add the photo to a collection for users to generate. But this time the underlying GPS coordinates that are included in all digitally taken photographs will cross reference SMAC’s database of art. With the databases artist information and the GPS location the application can bring pertinent information to the user’s fingertips. Now instead of having to find a small placard in the bustling airport to learn more about the Donald Lipski chandelier, for example, the traveler will have the ability to download the App to their smartphone giving them access to all the art in the airport. The App can bring up basic information as well as included links to more detailed info existing on the web with sites like Wikipedia or the artist's own site. This should greatly help alleviate the publicity problem for high value artwork that exists in public places around the world. Works like these should not go un-recognized and ArtNab can provide a function to remedy this problem. The Sacramento airport is a perfect starting point to introduce this application, as it has been voted for some of the best artwork in airports in America.
MUSEUM TOURS V1.2

Version 1.2 will focus on museum tours. These tours have proven to be a costly addition to many institutions. Often so costly it is entirely overlooked, which is the case of our Crocker Art Museum in Sacramento. ArtNab V1.2 is an innovative contemporary application that can supplement what is currently available in the world of audio tours, as well as diminish the exorbitant costs of these tours. To maintain its contemporary edge, ArtNab will solely work with living artists and enable them to get a direct, from the creators account, of their work. This direct from the artist account of the work will create a fresh, honest, and genuine detail into the work. By circumventing curators, museum staff, and third party audio tour makers, the content of the audio description will not be diluted. This benefits the artist, the art spectator, and the museum.

The artist is happy their work cannot be misrepresented. They are happy to impose their true beliefs behind the work rather than suggestive interpretive clues given from the artist’s public lives or political beliefs. Now the account can come direct from the heart and mind that actually created the work adding authenticity to the presentation.

Museum goers obviously benefit from a first hand account of the work by the above mentioned, as well as being able to hear and feel the emotion of the artist themselves. This experience would be much less dry than that of an orator or a curator reading a pre-scripted interpretation of the work to the best of their ability. The basic interface will remain the same; the museumgoer will use ArtNab V1.2 to snap a non-flash photo of the work, opening a screen to go directly to the audio tour. From here, the user can learn more about the artist or even add the tour and/or the artwork into their own gallery of works collected from their different museum experiences as well as their travels. They can revisit this moment, re-listen to the tour as much as they want, or even share their experience with their art loving friends.

Finally, and most importantly, the museum benefits financially from this process. No longer do they have to extensively research and create an audio tour or buy, maintain, organize, insure, and warranty expensive audio hardware that will most likely be outdated
in three years. With the simplicity of offering an application download, the museum will alleviate all the above-mentioned issues. ArtNab will work with artists to create tours for all their works in all their exhibitions.

ARTIST PROMOTION V1.3

When thinking about artist promotion certain fundamental questions are important to address. One of these is the age-old question of the purpose of art, as well as the practicality of it. I have found people are highly inspired to share the things they like. Art is often high on this list, and collections can be exalted. It is a rarity for people to want to keep their collections completely private. Instead, they like to congregate around the collection and talk about the merit, the artist, and the history behind the work. This is the traditional method of sharing in the more practical sense of the art world and often ends up improving value of the work. Recently people have taken to the digital world to share their likes and seek the admiration of like-minded people. ArtNab V1.3 has the potential to generate an online presence dedicated to art solely, rather than the myriad of human interest currently displayed on social sites. In a recent online article directed at valuing artwork, documentation is presented as paramount. “Next to the original physical work itself, good documentation is the best long-term investment you can make in your art practice. It will be the backbone of your art archive, and the primary factor in how your entire practice is viewed long-term. Remember that just because you may have strong work doesn’t mean that it will be perceived that way through your documentation. Bad documentation = bad work”. (Atkinson, 2015)

This sentiment holds its weight for both artists and collectors alike. ArtNab V1.3 has a unique advantage for promoting artists and their work through a simple interface that organizes and documents their catalogue. By creating an easily functioning catalogue of art with vital artwork data, the user gets the added benefit of being able to algorithmically data mine the catalogue. Data Mining is defined similarly to its direct connotation, “A process used by companies to turn raw data into useful information. By using software to
look for patterns in large batches of data, businesses can learn more about their customers and develop more effective marketing strategies as well as increase sales and decrease costs” (Investopedia). Being able to search a catalogue of art with terms like medium, year, style etc. is a great way to substantiate a collection as well as learn about trends in the art world. By enabling people to search a whole database of user generated artistic information, like-minded individuals will be able to find each other through their art collections and rejoice in the process. This update of the App would act as a virtual Gallery. By using the catalogue of work that we are currently able to create, this version will take that information and adapt the catalogue into a gallery view. Artists will benefit through the inherent human desire to seek, find, and share. In this updated version, the organizational ability of the current platform will lend itself to an online version dedicated to the promotion of artists.

INTERACTIVITY-WEB 2.0-ArtNab enabling the Art world to evolve

The art world and artists face many challenges in competing technologies and creative endeavors. I believe that art, like many other creative endeavors, will evolve with the changing times and technologies. Television is a great example of a technology and creative endeavor that has evolved with the times. Because of limited programming, television began as a social entertainment experience when a family or group of friends could gather around watch and talk about the “moving pictures”. Often it was discussed the day after and beyond. Television evolved into a more reclusive, more individual activity as television technology improved the entertainment factor became more complex. In the early 1990’s technology, advancement could transport you to another realm, a complete isolation and interaction between viewer and screen. As a result of this technology, scholars such as Putnam blamed television for the deterioration of both civic and social engagement (Putnam, 1995) His Reasoning being that television caused less face to face interactions among people. He further reasoned that face to face interaction was the basis for trust in a community.
As other technologies are introduced, mainly the Internet assisted by computers, television and its viewers once again are forced to evolve. Interestingly enough, communal television experience has once again become forefront in the entertainment experience.

Social network sites (SNSs), however, allow television viewers to once again enjoy the communal experience of group viewing without being physically together. This study looks at a new practice of television viewing that combines these two elements: viewers are sharing their viewing experiences real-time through computer-mediated communication, which creates a pseudo-communal viewing experience even though they are not collocated. (D. Yvette Wohn, 2011)

Now, viewers have the option to watch any time they want, anywhere they want. According to Nielsen’s 2008 Three Screen Report (The Nielsen Company, 2008), 131 million Americans watch video on the Internet, a 13 percent increase from 2008, and 13.4 million Americans watch videos on mobile phones, a 4.9 percent increase from the previous year. These new forms of viewing are heavily linked with social media, which extends the viewing experience, enabling a viewer to engage in conversation or other forms of interaction with his or her social networks.

Accenture’s latest research on consumer viewing habits finds that fully 62 percent of TV viewers are concurrently using a computer or a laptop and 41 percent are using a mobile phone—messaging friends about a sitcom joke or fact-checking politicians’ claims, perhaps. Coupled with the widespread availability of high-speed wireless Internet, today’s viewing experience is more interactive, more consumable and far more sharable in real time. But consumers also want to be able to personalize the services they consume, with search, recommendations and social features becoming increasingly integrated across media. Accenture found that 64 percent of them prefer using genres—that is, content types such as “spaghetti Westerns”, “cartoons” and others—as search criteria for finding new video content. And 43 percent prefer finding new video content by using personalized recommendation engines that track what they’ve watched and suggest similar content. (Murdoch, 2012)
This phenomenon is known as Web 2.0. It is a more personalized experience where users like to collaborate with other users and a more customized experience is possible. ArtNab brings art viewing into a Web 2.0 environment where like interests can be shared and more artists can be discovered and recognized.

Web 2.0 is the term given to describe a second generation of the World that is focused on the ability for people to collaborate and share information online. Web 2.0 basically refers to the transition from static HTML Web pages to a more dynamic Web that is more organized and is based on serving Web applications to users. Other improved functionality of Web 2.0 includes open communication with an emphasis on Web-based communities of users, and more open sharing of information. Over time Web 2.0 has been used more as a marketing term than a computer-science-based term. Blogs, Wikis, and Web services are all seen as components of Web 2.0. (Beal, 2016)

From my research, I have found that ArtNab could be a pioneer in bringing the art world into the Web 2.0 environment. Applications are starting to emerge, that use similar technology to aid in users lives. French site WhereToGet.It allows users to post photos from the street, magazines, blogs or films, and ask where the featured items can be purchased. Amsterdam's Schiphol Airport and Paris' Charles de Gaulle Airport launched a mobile App in January 2012 specifically designed to help Chinese visitors navigate around the airports, by translating the airport signs in real-time. VizWiz is an App that blind users “see”, by providing them quick answers to questions about their surroundings through images they have taken. Google’s Skymap enables users to point their phones at the sky to display detailed information on the objects or constellations to which they point. Pinkfroot has developed Plane Finder iPhone and Android Web 2.0 App, which allow users to point their phone cameras at the sky and discover individual aircraft flight numbers, speed, altitude and distance. Eventually mobile users will be able to point at an artwork or monument and pertinent information would hover over the work on their screen. This is similar to the museum update but could work in all geographic locations.
To effectively accomplish the web 2.0 version ArtNab would have to geo-cache artworks of all kinds around the country not unlike how Google Maps, maps buildings and streets. This would take full advantage of GPS technology and all of ArtNab’s previous versions capabilities.
CONCLUSION

Currently Version 1.0 has proven to aid in the common practice of data entry and correspondence. After witnessing the success of Version 1.0, future versions offer promise. Version 1.0 is essentially a “utility knife” of communication tools that apply towards a specific sector of art cataloguing. It effectively enhances the user's ability to log artwork and dispatch it to necessary entities. This is a common practice in digital communication and although it is not difficult it can be time consuming and laborious. The tediousness is dependent on file sizes, user’s ability to operate cameras, the ability to navigate different software and hardware devices, as well as a user's operating system speeds. Currently all data entries are concisely packaged for communication with interested parties, as you will see below. ArtNab has greatly improved the catalogue of my own art collection, and for the first time it will be assessed by my homeowner’s insurance within my policy. By doing this I will have established a record of provenance and given my collection a value that I previously did not have recorded. The operations of the App may seem banal, but it truly improves a tedious task of cataloguing both large and small collections. By creating an all-in-one software plus hardware bundle, a useful tool is available to everyday collectors. This, is the real brilliance of the App, not how it works, but why it works. By understanding the importance of provenance and art cataloguing, and seeing the current methods of entry being applied to the field, the concept of creating an all-in-one program for this five-step process solved a tedium in the communications process of art correspondence. This convenience is greatly needed for the non-professional arts and antiques collectors. It is especially useful for the collector who does not have the means for an assistant to do data entry. As technology evolves, people are creating digital identities and have an increasingly digital interaction. The
maturity of a number of mobile technologies — such as GPS, cameras, accelerometers, digital compasses, broadband, image processing and face/object recognition software — has made handheld user generated data and interaction more possible than ever. By creating a platform dedicated to art promotion, identification, and cataloguing, we are creating digital currency. Users become currency and artists benefit by gaining more recognition. Through my findings while developing and using this app, I conclude ArtNab improves the act of art cataloguing and in doing so creates value by creating more thorough records of collections that may or may not have previously existed.
### APPENDIX A

<table>
<thead>
<tr>
<th>ARTNAB</th>
<th>ARTNAB</th>
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<tbody>
<tr>
<td><strong>Collection:</strong> Stremmel Gallery</td>
<td><strong>Collection:</strong> Stremmel Gallery</td>
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<td><strong>Artist:</strong> Tom Judd</td>
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<td><strong>Title:</strong> Wrong Movie</td>
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<td><strong>Date:</strong> March 17th</td>
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<td><strong>Created on:</strong> N/A</td>
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<tbody>
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<td><strong>Collection:</strong> Stremmel Gallery</td>
</tr>
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<td><strong>Artist:</strong> Tom Judd</td>
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<tr>
<td><strong>Title:</strong> Lost Highway</td>
<td><strong>Title:</strong> Lost Highway</td>
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<td><strong>Date:</strong> March 17th</td>
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<td><strong>Created on:</strong> N/A</td>
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<td><strong>Location:</strong> 1400 South Virginia Street Reno, Nevada 89502</td>
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ARTNAB
Collection: Stremmel Gallery
Artist: Tom Judd
Title: Home on The Range
Date: March 17th
Value: $2000
Medium: Acrylic
Purchased: N/A
Tags: #Teepee#Amish

Created on: N/A
Location: 1400 South Virginia Street, Reno, Nevada 89502

ARTNAB
Collection: Stremmel Gallery
Artist: Tom Judd
Title: Open Carry
Date: March 17th
Value: $1600
Medium: Acrylic
Purchased: N/A
Tags: #gunslinger#shooter

Created on: N/A
Location: 1400 South Virginia Street, Reno, Nevada 89502

ARTNAB
Collection: Stremmel Gallery
Artist: Tom Judd
Title: Mixed Blessing
Date: March 17th
Value: $1600
Medium: Acrylic
Purchased: N/A
Tags: #boots#blessings

Created on: N/A
Location: 1400 South Virginia Street, Reno, Nevada 89502

ARTNAB
Collection: Stremmel Gallery
Artist: Tom Judd
Title: Construction Zone
Date: March 17th
Value: $1800
Medium: Acrylic
Purchased: N/A
Tags: #Little feather

Created on: N/A
Location: 1400 South Virginia Street, Reno, Nevada 89502
ARTNAB

**Collection:** Stremmel Gallery

**Artist:** Tom Judd
**Title:** Planetarium
**Date:** March 17th, 2016
**Value:** $3000
**Medium:** Acrylic Collage
**Purchased:** N/A
**Tags:** #chair#antique

Created on: N/A
Location: 1400 South Virginia Street Reno, Nevada 89502

ARTNAB

**Collection:** Stremmel Gallery

**Artist:** Tom Judd
**Title:** Little Cottonwood
**Date:** March 17th
**Value:** $14,000
**Medium:** Oil
**Purchased:** N/A
**Tags:** #Landscape

Created on: N/A
Location: 1400 South Virginia Street Reno, Nevada 89502

ARTNAB

**Collection:** Stremmel Gallery

**Artist:** Tom Judd
**Title:** The General
**Date:** March 17th
**Value:** $1800
**Medium:** Acrylic Collage
**Purchased:** N/A
**Tags:** #Child#general

Created on: N/A
Location: 1400 South Virginia Street Reno, Nevada 89502

ARTNAB

**Collection:** Stremmel Gallery

**Artist:** Tom Judd
**Title:** Open Pit Mine
**Date:** March 17th
**Value:** $10000
**Medium:** Oil on Canvas
**Purchased:** N/A
**Tags:** #Mining#west

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<td>Title: Momentary</td>
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Created on: N/A
Location: 1400 South Virginia Street, Reno, Nevada 89502

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<tbody>
<tr>
<td>Artist: Tom Judd</td>
<td>Artist: Tom Judd</td>
</tr>
<tr>
<td>Title: Orange Chair</td>
<td>Title: History Explained</td>
</tr>
<tr>
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<td>Date: March 17th, 2016</td>
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Created on: N/A
Location: 1400 South Virginia Street, Reno, Nevada 89502
ARTNAB
Collection: Stremmel Gallery

Artist: Tom Judd
Title: Handshake
Date: March 17th, 2016
Value: $1,800
Medium: Acrylic
Purchased: N/A
Tags: #Indian#negotiation

Created on: N/A
Location: 1400 South Virginia Street, Reno, Nevada 89502

ARTNAB
Collection: Stremmel Gallery

Artist: Tom Judd
Title: High Society
Date: March 17th, 2016
Value: $1,800
Medium: Acrylic
Purchased: N/A
Tags: #victorian#natives

Created on: N/A
Location: 1400 South Virginia Street, Reno, Nevada 89502

ARTNAB
Collection: Stremmel Gallery

Artist: Tom Judd
Title: Elements of Surprise
Date: March 17th, 2016
Value: $2,000
Medium: Acrylic
Purchased: N/A
Tags: #alien#victorian

Created on: N/A
Location: 1400 South Virginia Street, Reno, Nevada 89502

ARTNAB
Collection: Stremmel Gallery

Artist: Tom Judd
Title: Father and Child
Date: March 17th, 2016
Value: $1,600
Medium: Acrylic
Purchased: N/A
Tags: #mixed#relationship

Created on: N/A
Location: 1400 South Virginia Street, Reno, Nevada 89502
AIRPORT COLLECTION

**ARTNAB**

**Collection:** Stremmel Gallery

**ARTNAB**

**Collection:** Stremmel Gallery

**Artist:** Tom Judd

**Title:** Father and Child

**Date:** March 17th, 2016

**Value:** $1,600

**Medium:** Acrylic

**Purchased:** N/A

**Tags:** #mixed#relationship

**Created on:** N/A

**Location:** 1400 South Virginia Street Reno, Nevada 89502

**ARTNAB**

**Collection:** Stremmel Gallery

**ARTNAB**

**Collection:** Stremmel Gallery

**Artist:** Tom Judd

**Title:** Comanche

**Date:** March 17th, 2016

**Value:** $6,000

**Medium:** Oil on canvas

**Purchased:** N/A

**Tags:** #horse#stallion

**Created on:** N/A

**Location:** 1400 South Virginia Street Reno, Nevada 89502

**ARTNAB**

**Collection:** Stremmel Gallery

**ARTNAB**

**Collection:** Stremmel Gallery

**Artist:** Tom Judd

**Title:** End of The Line

**Date:** March 17th

**Value:** $1800

**Medium:** Acrylic

**Purchased:** N/A

**Tags:** #Girlsguns

**Created on:** N/A

**Location:** 1400 South Virginia Street Reno, Nevada 89502

**ARTNAB**

**Collection:** Stremmel Gallery

**ARTNAB**

**Collection:** Stremmel Gallery

**Artist:** Tom Judd

**Title:** Marlboro Country

**Date:** March 17th, 2016

**Value:** $2,000

**Medium:** Acrylic

**Purchased:** N/A

**Tags:** #wild#west#dress

**Created on:** N/A

**Location:** 1400 South Virginia Street Reno, Nevada 89502

**AIRPORT COLLECTION**
ARTNAB
Collection: Airport International Terminal A

Artist: Les Birleson
Title: Traveling Light
Date: N/A
Value: N/A
Medium: Polycarbonate, screen printed silk, airline cable
Purchased: N/A
Tags: #flight#travel

Created on: N/A
Location: 6900 Airport Blvd, Sacramento, CA 95837

ARTNAB
Collection: Airport International Terminal A

Artist: Brian Goggin
Title: Samson
Date: N/A
Value: N/A
Medium: Mixed media and structural steel
Purchased: N/A
Tags: #flight#travel

Created on: N/A
Location: 6900 Airport Blvd, Sacramento, CA 95837

ARTNAB
Collection: Airport International Terminal A

Artist: Gregory Kondos
Title: River’s Edge
Date: N/A
Value: N/A
Medium: Oil on canvas
Purchased: N/A
Tags: #flight#travel

Created on: N/A
Location: 6900 Airport Blvd, Sacramento, CA 95837

ARTNAB
Collection: Airport International Terminal A

Artist: Christopher Janney
Title: Chromatic Oasis
Date: N/A
Value: N/A
Medium: Interactive multimedia
Purchased: N/A
Tags: #flight#travel

Created on: N/A
Location: 6900 Airport Blvd, Sacramento, CA 95837
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<tr>
<td>![Image of art piece] (Flying Garden)</td>
<td>![Image of art piece] (Winged One)</td>
</tr>
<tr>
<td><strong>Artist:</strong> Dennis Oppenheim</td>
<td><strong>Artist:</strong> Camille VandenBerg</td>
</tr>
<tr>
<td><strong>Title:</strong> Flying Garden</td>
<td><strong>Title:</strong> Winged One</td>
</tr>
<tr>
<td><strong>Date:</strong> N/A</td>
<td><strong>Date:</strong> N/A</td>
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<tr>
<td><strong>Value:</strong> N/A</td>
<td><strong>Value:</strong> N/A</td>
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<tr>
<td><strong>Medium:</strong> Steel, colored lexan, and Plexiglass</td>
<td><strong>Medium:</strong> Cast bronze</td>
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<td><strong>Purchased:</strong> N/A</td>
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<tr>
<td>![Image of art piece] (Sutter’s Gold)</td>
<td>![Image of art piece] (Leap)</td>
</tr>
<tr>
<td><strong>Artist:</strong> Gregory Kondos</td>
<td><strong>Artist:</strong> Lawrence Argent</td>
</tr>
<tr>
<td><strong>Title:</strong> Sutter’s Gold</td>
<td><strong>Title:</strong> Leap</td>
</tr>
<tr>
<td><strong>Date:</strong> N/A</td>
<td><strong>Date:</strong> N/A</td>
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<td><strong>Value:</strong> N/A</td>
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<td><strong>Medium:</strong> Oil on canvas</td>
<td><strong>Medium:</strong> Aluminum, steel, granite, bronze</td>
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<td><strong>Location:</strong> 6900 Airport Blvd, Sacramento, CA 95837</td>
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ARTNAB
Collection: Airport International Terminal B

Artist: Christian Moeller
Title: The Baggage Handlers
Date: N/A
Value: N/A
Medium: Wood, Steel
Purchased: N/A
Tags: #flight#travel

Created on: N/A
Location: 6900 Airport Blvd, Sacramento, CA 95837

ARTNAB
Collection: Airport International Terminal B

Artist: Camille Utterback
Title: Active Ecosystem
Date: N/A
Value: N/A
Medium: LCD Screens, glass, steel
Purchased: N/A
Tags: #flight#travel

Created on: N/A
Location: 6900 Airport Blvd, Sacramento, CA 95837

ARTNAB
Collection: Airport International Terminal B

Artist: Joan Moment
Title: A Fragment of the Universe
Date: N/A
Value: N/A
Medium: Glass tessera mosaic
Purchased: N/A
Tags: #flight#travel

Created on: N/A
Location: 6900 Airport Blvd, Sacramento, CA 95837

ARTNAB
Collection: Airport International Terminal B

Artist: Lynn Criswell
Title: As the Crow Flies
Date: N/A
Value: N/A
Medium: Aluminum, terrazzo, polyurethane
Purchased: N/A
Tags: #flight#travel

Created on: N/A
Location: 6900 Airport Blvd, Sacramento, CA 95837
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<tr>
<td>Artist: Suzanne Adan</td>
<td>Artist: Ned Kahn</td>
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<tr>
<td>Title: Flying Colors</td>
<td>Title: Airside</td>
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<tr>
<td>Date: N/A</td>
<td>Date: N/A</td>
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<td>Value: N/A</td>
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<tr>
<td>Medium: Glass tessera mosaic</td>
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<td><strong>ARTNAB</strong></td>
<td><strong>ARTNAB</strong></td>
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<tr>
<td>Artist: Mildred Howard</td>
<td>Artist: Po Shu Wang/Louise Bertelsen</td>
</tr>
<tr>
<td>Title: This House Won't Stand</td>
<td>Title: Your words are music to my ears</td>
</tr>
<tr>
<td>For any Color But it's Own</td>
<td>Date: N/A</td>
</tr>
<tr>
<td>Date: N/A</td>
<td>Value: N/A</td>
</tr>
<tr>
<td>Value: N/A</td>
<td>Medium: Stainless steel, steel</td>
</tr>
<tr>
<td>Medium: Glass, powder coated steel</td>
<td>Purchased: N/A</td>
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<td>Location: 6900 Airport Blvd, Sacramento, CA 95837</td>
<td>Location: 6900 Airport Blvd, Sacramento, CA 95837</td>
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**ARTNAB**

**Collection:** Airport International Terminal B

- **Artist:** Marcia Stuermer
- **Title:** Migration
- **Date:** N/A
- **Value:** N/A
- **Medium:** Acrylic panels, LED lights
- **Purchased:** N/A
- **Tags:** #flight#travel

**Created on:** N/A

**Location:** 6900 Airport Blvd, Sacramento, CA 95837

---

**ARTNAB**

**Collection:** Airport International Terminal B

- **Artist:** Donald Lipski
- **Title:** Acorn Steam
- **Date:** N/A
- **Value:** N/A
- **Medium:** Wood, steel, latex, polished austrian crystal
- **Purchased:** N/A
- **Tags:** #flight#travel

**Created on:** N/A

**Location:** 6900 Airport Blvd, Sacramento, CA 95837

---

**ARTNAB**

**Collection:** Airport International Terminal B

- **Artist:** Mark Rivera
- **Title:** Going With The Flow
- **Date:** N/A
- **Value:** N/A
- **Medium:** Hand made ceramic; 5 ceramic wall hangings
- **Purchased:** N/A
- **Tags:** #flight#travel

**Created on:** N/A

**Location:** 6900 Airport Blvd, Sacramento, CA 95837

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**ARTNAB**

**Collection:** Airport International Terminal A

- **Artist:** Seyed Alavi
- **Title:** Flying Carpet
- **Date:** N/A
- **Value:** N/A
- **Medium:** Digital Print on Wool
- **Purchased:** N/A
- **Tags:** #flight#travel

**Created on:** N/A

**Location:** 6900 Airport Blvd, Sacramento, CA 95837
ARTNAB
Collection: Home collection
Title: Man on
Date: 4/27/2016
Value: $250
Medium: Clay,
Purchased in 1994
Tags:
#sculpture

Created on July 27th, 1994
Location:

ARTNAB
Collection: Home collection
Title: Spiral
Date: 4/27/2016
Value: $400
Medium: Acrylic
Purchased in 2004
Tags:
#abstract

Created on April 27th, 2004
Location:
5750 Melarky Way, Reno, NV 89511, United States

ARTNAB
Collection: Home collection
Title: Seafumble,
Date: 4/27/2016
Value: $500
Medium: Mixed
Purchased in 2008
Tags:
#seasculture#foundobject

Created on September 27th, 2007
Location:
5750 Melarky Way, Reno, NV 89511, United States

ARTNAB
Collection: Home collection
Title: Corporate
Date: 4/27/2016
Value: $500
Medium: Clay,
Purchased in 2005
Tags:
#sculpture#suit

Created on August 22th, 2005
Location:
5750 Melarky Way, Reno, NV 89511, United States
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<td>Title: Ak Yak,</td>
<td>Title: Pulse</td>
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<tr>
<td>Date: 4/27/2016</td>
<td>Date: 4/27/2016</td>
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<td>Value: $8000</td>
<td>Value: $400</td>
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<tr>
<td>Medium:</td>
<td>Medium: Oil on</td>
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<tr>
<td>Purchased in 2006</td>
<td>Purchased in 2015</td>
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<tr>
<td>Tags: #animal</td>
<td>Tags: #yoga#pulse</td>
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<td>Created on July 27th, 2005</td>
<td>Created on April 21th, 2015</td>
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<td>Location:</td>
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<tr>
<td>Date: 4/27/2016</td>
<td>Date: 4/27/2016</td>
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<tr>
<td>Value: $2000</td>
<td>Value: $2000</td>
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<tr>
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<td>Medium:</td>
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<td>Purchased in 2013</td>
<td>Purchased in 2016</td>
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<td>Tags: #abstract#</td>
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<td>Created on October 23th, 2011</td>
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<td><strong>Title:</strong> Desert</td>
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<tr>
<td><strong>Date:</strong> 4/27/2016</td>
<td><strong>Date:</strong> 4/27/2016</td>
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<tr>
<td><strong>Value:</strong> $1500</td>
<td><strong>Value:</strong> $1000</td>
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<tr>
<td><strong>Medium:</strong> Acrylic</td>
<td><strong>Medium:</strong></td>
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<td><strong>Purchased in 2016</strong></td>
<td><strong>Purchased in 2016</strong></td>
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<td><strong>Tags:</strong> #surrealism</td>
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Created on April 27th, 2016
Location:
5750 Melarky Way, Reno, NV 89511, United States

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<td><strong>Title:</strong></td>
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<tr>
<td><strong>Date:</strong> 4/27/2016</td>
<td><strong>Date:</strong> 4/27/2016</td>
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<td><strong>Value:</strong> $450</td>
<td><strong>Value:</strong> $250</td>
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<td><strong>Medium:</strong></td>
<td><strong>Medium:</strong> Acrylic</td>
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<td><strong>Purchased in 2016</strong></td>
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<td><strong>Tags:</strong> #sculpture</td>
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Created on April 27th, 2014
Location:
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<td><strong>Value:</strong> $1000</td>
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Created on November 17th, 2016
Location:
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<td>Title: Lotus</td>
<td>Title: Skulls and</td>
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<td>Date: 4/27/2016</td>
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<td>Value: $1500</td>
<td>Value: $2000</td>
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<td>Tags: #thailand#screen</td>
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<td>Created on April 27th, 2005</td>
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<td>Location: 5750 Melarky Way, Reno, NV 89511, United States</td>
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<tr>
<td>Title: What the</td>
<td>Title: BP Spill</td>
</tr>
<tr>
<td>Date: 4/27/2016</td>
<td>Date: 4/27/2016</td>
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<tr>
<td>Value: $2500</td>
<td>Value: $2000</td>
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<td>Medium: Acrylic</td>
<td>Medium:</td>
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<tr>
<td>Purchased in 1997</td>
<td>Purchased in 2010</td>
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<tr>
<td>Tags: #surrealism#ghosts</td>
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<td>Created on October 27th, 1997</td>
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<td>Location: 5750 Melarky Way, Reno, NV 89511, United States</td>
<td>Location: 5750 Melarky Way, Reno, NV 89511, United States</td>
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</tbody>
</table>
**ARTNAB**

**Collection:** Home collection

**Title:** Breakers  
**Date:** 4/27/2016  
**Value:** $1500  
**Medium:** Acrylic  
**Purchased in:** 1997  
**Tags:**  
#surrealism#original#  

Created on November 27th, 1997  
**Location:**  
5750 Melarky Way, Reno, NV 89511, United States

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**ARTNAB**

**Collection:** Home collection

**Title:** Figure  
**Date:** 4/27/2016  
**Value:** $2000  
**Medium:** Oil  
**Purchased in:** 1997  
**Tags:**  
#figure#original#oil  

Created on April 27th, 1997  
**Location:**  
5750 Melarky Way, Reno, NV 89511, United States

---

**ARTNAB**

**Collection:** Yr homes office

**Title:** Bali mask  
**Date:** 4/27/2016  
**Value:** $500  
**Medium:** Teak  
**Purchased in:** 2003  
**Tags:**  
#bali  

Created on April 27th, 2016  
**Location:**  
5750 Melarky Way, Reno, NV 89511, United States

---

**ARTNAB**

**Collection:** Yr homes office

**Title:** Two ex  
**Date:** 4/19/2016  
**Value:** $1000  
**Medium:** Mixed  
**Purchased in:** 2000  
**Tags:**  
Mixed media  

Created on October 19th, 2000  
**Location:**  
5301 Longley Ln, Reno, NV 89511, United States
ARTNAB
Collection: Yr homes office
Title: King Louie,
Date: 4/19/2016
Value: $12000
Medium: Acrylic
Purchased in 1998
Tags:
Mixed media

Created on April 19th, 1997
Location:
5301 Longley Ln, Reno, NV 89511, United States

ARTNAB
Collection: Yr homes office
Title: Organic
Date: 4/19/2016
Value: $2500
Medium: Wood,
Purchased in 2007
Tags:
Wood art,

Created on April 19th, 2007
Location:
5301 Longley Ln, Reno, NV 89511, United States

ARTNAB
Collection: Home collection
Title: Figure
Date: 4/27/2016
Value: $2000
Medium: Oil
Purchased in 1997
Tags:
#figure#original#oil

Created on April 27th, 1997
Location:
5750 Melarky Way, Reno, NV 89511, United States
APPENDIX B

Wire Frame App Design Page 1
Wire Frame App Design Page 2
Bibliography

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