

Paperless Registration App

PROJECT SCOPE SUMMARY

PROJECT TIME & COST

HOURS

544.500

Project is billable at a flat fee

Note: Project hours above are an estimate and may not represent the actual number of hours or cost it will take to complete this project.

PROJECT DESCRIPTION

This is the scope document for the paperless registration tablet app. The general process for this system's use is that a front desk staff person will click a secure link and enter a pin code to find the patient, select the patient, and then hand the tablet to the patient for information to be verified or entered (it if is a new patient).

When the patient is done, they will be given a thank you page with content about their exam and what will happen, and instructions to turn back in the tablet.

If the patient has not completed their forms before the tech is ready for them, their data will still be saved and ready for review by the tech. After the patient has given their tablet back to the front desk staff, they will be transferred to the tech, who will have use the app in a different mode, which is described in the scope document.

RIS - Paperless Registration App

PROJECT SCOPE | Hours: 544.500

I. Project Wide Tasks (Task)

I.1. Planning And Information Architecture Development (Planning)

Description:

- Gather project specifications
- Research any 3rd party systems needed
- Look into other integrations
- Write up the project information architecture
- Review all items above with client, and get a sign off from the client on work

Notes:

The time for this item may change drastically based on the client.

Tasks:

Information Architecture Planning **8 hrs**
and Consultation

I.1.A. Patient Questionnaire Structure (Planning)

Description:

Organize the questions from the various forms for each center and compile them into a master list, sorting through redundancies.

Clear out redundant questions, and structure how they will be presented to patients.

This is priced at 4 hours for each center.

Tasks:

Research and planning **4 hrs**

I.2. Concept Design (Task)

Description:

Concept design generally falls into the first draft for the home page, but if it is being done separately, account for it in this time block. This time block may also include building a style guide for the rest of the project.

I.2.A. Style Guide Concept Design (Task)

Description:

Design a style guide that encompasses all standard HTML elements for the project.

Notes:

The style guide concept design is added as separate line item so that it can be easily removed if it is not needed.

Tasks:

Design - Composition

6 hrs

I.2.B. Wireframing (Task)

Description:

This is the process of outlining all the form items and doing general line drawing of each item then checking with staff members to be sure the information we have in place is correct and works well for them.

Notes:

<http://run.mockplus.com/Z46yvolxXVodZ9eE/index.htm...>

Tasks:

Wireframing

12 hrs

I.3. Framework Setup / Coding (Task)

Description:

After the initial concept has been designed and approved, build out the initial style sheet for this design. This also includes coding a style sheet for standard HTML elements for the project.

I.3.A. Style Guide Coding (Task)

Description:

Code the style guide for the entire project.

Notes:

The style guide coding is added as separate line item so that it can be easily removed if it is not needed.

I.4. Serving Environment

Setup (Task)

Description:

- Initiate hosting environments for build and for live areas
- Set up and distribute user permissions, usernames and passwords
- Inform all team members of new environments

I.5. Code Repository Setup (Task)

Description:

- Set up code repository
- Set up skeleton directory structure
- Commit and push code frameworks and other dependencies
- Invite or add users

I.6. Hockey setup (Task)

Description:

- Set up system
- Install SDK
- Share system
- Add users

Tasks:

Systems setup

0.5 hrs

I.7. Project Launch (Task)

Description:

- Training users
- Testing on local tablets
- Setting up charging bases

Notes:

II. General Description (Process)

Description:

The scope of work described below is for a single Android app that will function different based on what it's configured to do.

The app will have two modes that it can be configured to work as:

- A. Lobby Mode
- B. Technician Mode
- C. Online Mode

Depending on what Mode the app is running as, it will work in the way described under the VI. Lobby Mode section, VII. Technician Mode section or VIII. Online Mode section.

A. Lobby Mode

In Lobby Mode, the app will have the following general features:

- a front-desk staff member would access a hidden section using a PIN, find a patient, select it and hand the tablet over to the patient
- the patient would then see a very easy to use form that contains automatically-generated questions based on the procedures they're about to undergo
- the forms contain pre-filled information and are built with easy of use in mind
- the app notifies the front-desk staff member if the patient is taking too long
- patient signs with their finger on tablet when handing over the tablet back

B. Technician Mode

In Technician Mode, the app will function in a very similar manner to the Lobby Mode:

- a technician would be the one that would access the app, he would then again find a patient and select it
- once selected, he will be able to see a *condensed/streamlined* version of the same form that was presented to the patient
- the form would also highlight any questions with missing answers
- once the Technician is done with the form, he will submit a signature (with his finger on the tablet), and it will get saved and printed in the PDF form that gets sent out to RIS

C. Online Mode

Whenever a new appointment is created, automatically send out an email to the patient (if he has an email address), which will contain a link. Once the patient accesses the link, he will be able to see the forms generated for that day and be able to answer the questions 'in advance'. Once the patient comes on-site, he will still receive the tablet and will see all of the answers added in the online mode already pre-filled in the tablet.

III. App Security (Feature)

Description:

This section describes the security solutions to prevent patient information leaks

III.1. Network Lock (Feature)

Description:

Each Tablet will be registered in RIS under a site. A tablet registration will consist of adding the tablet's

IMEI number, as well as the network details under which it can operate.

The tablet will therefor only work if connected to the internet from the network that it's defined in.

Tasks:

Programming - Feature

27 hrs

Development

III.2. Kiosk Mode (Feature)

Description:

The App will run into Kiosk Mode. This means that the user is locked into the app and can't exit it.

Even a restart would put the tablet back into the app, thus preventing the user access to the tablet's OS.

We will also disable the notifications, top bar and pull-down menu.

Tasks:

Programming - Feature

15 hrs

Development

III.3. Rest Mode & PIN Access (Feature)

Description:

Upon booting, the app will find itself in 'Rest Mode'. This can be a simple page that will show the App's (or DGS's) logo, or a some images (maybe promoting the DSG network or something).

This is the screen that's visible when the app is neither used by a patient, nor by a staff member, and is also displayed once the patient is done and confirms that he is.

The app will not be able to receive any patient data unless a valid PIN is used to log in the front-desk staff member or technician.

Tasks:

Programming - Feature

5 hrs

Development

IV. App Settings (Process)

Description:

The app will contain a settings screen, which is accessible if the pin used to log in belongs to an admin or super admin account

Here you can choose whether the tablet runs in lobby mode or tablet mode

Tasks:

Programming - Feature

8 hrs

Development

V. Lobby Mode (Section)

Description:

This section describes the Tablet App in Lobby mode.

V.1. Front Desk Flow (Process)

Description:

From a staff perspective, this is the workflow we have in mind:

1. Staff enters pin in app to access list of patients
2. Once logged in, the staff will have to find the patient
3. The staff can also search for patients by name. Only patients scheduled today in the current office will appear.
4. Staff taps on patient name, which will display a pop-up some basic information that we may have in RIS: date of birth, phone, address, SSN (last 4). The pop-up will display a 'Submit to patient' button, which when pressed would generate the questions for the selected patient.
5. The staff then hands over the tablet to the patient so he can fill in the forms and questions

V.1.A. Enter PIN Page (Page)

Description:

The Enter PIN page can be accessed upon tapping a button on the 'Resting Page'

It will contain a single input field where the PIN can be entered and an 'Access' button.

Tasks:

Programming - Feature

8 hrs

Development

V.1.A.I. PIN functionality (Feature)

Description:

Each member of the front desk staff will have their own PIN.

The PIN will be used by the staff to enter the 'Find patient' screen.

Each RIS Core user will get a **unique** PIN number attached to their account.

Tracking will be done in RIS through the PIN number, so each time a staff member selects a patient in the app and confirms it, we will log this action against the appointment, with the staff member that gave the patient the tablet.

Tasks:

Programming - Feature

28 hrs

Development

V.1.A.II. Find Patient (Page)

Description:

The Find Patient page will contain a list of patients, a search field and a modal that opens when a patient's name is tapped on the screen, allowing the staff to select it

V.1.A.II.A. Patient Lists (List)

Description:

The Find Patient page will contain 4 tabs with lists of patients:

- Patients with upcoming appointments today
 - appointments with start time in the future
 - sorted by date ascending
 - only showing patients for appointments that are not yet registered
- Patients with past appointments today
 - appointments with start time in the past
 - sorted by date descending
 - only showing patients for appointments that are not yet registered
- Patients with registered appointments today and unfinished forms
 - appointments that are registered and with unfinished forms
 - we could also try showing a progress bar for each patient so we can see how many questions he still has left to answer.
- All patients scheduled today
 - showing all patients with appointments scheduled for today, regardless of time or forms status

Each patient list item will contain:

- Patient name
- Patient dob
- Last 4 of SSN
- A list of today's scans (along with the scheduled time for each one), color-coded

Tasks:

Programming - Feature

20 hrs

Development

**V.1.A.II.B. Search
Patient (Feature)**

Description:

We would also display a 'search' field that would allow the user to search by name through all of the patients scheduled today. The search field will use **autocomplete** function.

The search results will be displayed using the same template as the Patient Lists page described above.

Tasks:

Programming - Feature

13 hrs

Development

V.1.A.II.C. Patient Modal (Modal)

Description:

When tapping on a patient, we will open a modal showing the full patient file, along with the following fields:

- Patient name
- Patient dob
- Weight
- Height
- Phone number
- Address
- Last 4 of SSN
- Insurance information
- Prior scans - list
- A list of today's scans (along with the scheduled time for each one)

The modal will also contain two buttons:

- Select Patient -> Starts Patient Flow
- Back -> Moves user back to Find page

Tasks:

Programming - Feature

8 hrs

Development

V.2. Patient Flow (Process)

Description:

1. Once the patient receives the tablet, he will see a welcome screen that has some tips on how to use the tablet, using a small tutorial. The patient will press Next to move on to the next screen, which contains the first question that he needs to answer/confirm. At this point we will also start a timer.
2. The patient will then be taken through a series of questions, laid out in a simple way. Some of the questions may contain pre-filled data if we have it in RIS, and the patient would only need to confirm it.
3. Each question is saved as soon as answered, so if the patient gets taken to their exam, the progress is saved.
4. The questions will be in the following order:
 1. Patient Information
 2. Clinical Data
 3. HIPAA Confirmation
 4. Signature
 5. Financial Forms
 6. Signature
5. Once the patient signs, he will see a page with information about his exam(s) and can press continue at his leisure.
6. He'll then be asked to return the tablet to the front desk

Notes:

each question will be saved in the RIS Core DB as soon as the user presses the Next button user can go back and edit his answers - the questions will be prefilled with the current state of the form (and not what the DB had otherwise)

V.2.A. Content Pages creation (Feature)

Description:

We will add a new section in the RIS admin where the admins can add new content pages which will be displayed in the lobby mode app or the online form

The pages can be set to display either at the beginning or the end of the forms

They will contain a title and a body. The body will also accept images

Notes:

Tasks:

Programming - Feature

30 hrs

Development

Patient Timer (Feature)

Description:

A timer will start when a patient starts filling in the forms.

It will be recording mainly two things:

1. Time the patient spends filling out the form, whether they get a chance to complete it or if a tech arrives before they do.
2. Time to finish forms, if they do.

This info will be recorded in the RIS.

Additionally: If a patient leaves a single question or set of questions open for an inordinate amount of time(say, two or five minutes) the desk staff who signed the patient in should be paged.

If that desk staff member isn't signed in still, the system should notify a separate member **from the same Office**.

The notifications will come in RIS as push notifications in the browser.

Notes:

We will need to edit the time until a notification is sent when the patient is stuck

Tasks:

Programming - Feature

38 hrs

Development

V.2.B. Patient Instructions (Page)**Description:**

Instructions for the Patient will appear on the tablet after they're signed up and the desk staff will hand the tablet over for the patient to fill out the forms.

This will be a static page with various elements highlighted and some informational tips written next to them.

Tasks:

Programming - Feature

14 hrs

Development

V.2.B.I. TOS Payment screen (Feature)**Description:**

Once the patient sees the instructions, he will be able to see the TOS payment for the appointments he's scheduled for today.

Tasks:

Programming - Feature

8 hrs

Development

V.2.C. Generated Form (Page)**Description:**

This section describes how the form is generated.

It's important to note that these forms will need to be as simple as possible to use, and require the least amount of typing as possible.

Each question may also contain an already-filled answer if the patient has the information on file.

Tasks:

Programming - Feature

72 hrs

V.2.C.I. Patient Information Sheet questions (Section)

Description:

The first set of questions will be the ones from the Patient Information Sheet.

These questions will all be pre-filled with the values from RIS.

It will contain roughly 30 questions regarding:

- patient information (name, contact info, etc)
- insurance information (number of insurances, details about each one). The number of insurances that the patient needs to fill in is triggered from a dropdown
- extra fields if person is minor (triggered by DOB)

V.2.C.II. Financial Forms (Section)

Description:

TBD - moved to Phase 2 for now

This is a placeholder to note that after the Patient Information Sheet questions we have the Financial Forms.

V.2.C.III. Patient Demographic questions (Section)

Description:

TBD - need more info about what forms fit in here

This is a placeholder to note that after the Payment Options we have the Patient Demographic questions

V.2.C.IV. Patient agreement to medical consent (Section)

Description:

Will be displayed once for every appointment, regardless of Modality or procedure

V.2.C.V. Clinical Forms questions (Modality-Specific) (Section)

Description:

Each question will be controlled from the RIS Core Database.

Each question will have an ID and a form will contain a series of questions. If there are questions

that overlap in multiple forms, we will need to display them only once.

The question themselves are stored in the tablet app, and tell the tablet which questions to use for the form that it generates. Using this flow would enable us in the future to implement a form builder, or form editor, where you could add, edit or remove questions from the forms directly.

Patient forms will have been organized into a list of questions and pieces of legal phrasing that the patient will have to either answer, approve or acknowledge and sign.

The tablet system will need to know how to organize and present those. It will also need to know what to do if there are multiple modalities and what questions to include/what questions overlap.

This is the development of that feature.

V.2.C.V.A. MRI (Form)

Description:

Will contain the following RIS Forms, based on CPT code:

- Form 4: MRI Misc. Form
- Form 5: MRI Spine Form
- Form 6: MRI Head Form
- Form 7: MRI Abdomen-Pelvis Form
- Form 8: MRI Orthopedic ATHENS
- Form 9: MRI Screening Safety Form

Note: In Future, we can have a series of questions to narrow down Spine, Head, Abdomen, etc. in advance.

V.2.C.V.B. CT (Form)

Description:

Will contain the following RIS Forms, based on CPT code:

- Form 3: CT Form
- Form 11: CT Cardiac Scoring

V.2.C.V.C. X-Ray (Form)

Description:

X-Rays don't have modality-specific forms - we will only display the questions from the general forms for these procedures.

V.2.C.V.D. Mammo (Form)

Description:

Mammos don't have modality-specific forms - we will only display the questions from the general forms for these procedures.

V.2.C.V.E. Ultrasound (Form)**Description:**

Ultrasounds don't have modality-specific forms - we will only display the questions from the general forms for these procedures.

V.2.C.V.F. Bone Density (Form)**Description:**

Will contain the following Forms, based on CPT code:

- Form 10: Bone Density Form

V.2.C.VI. SAVE Medical Information and Consent (Process)**Description:**

The questions found in these Forms will be included at the end of the Clinical Forms questions

Form 12: SAVE PT INFO

Form 13: Screening Consent

Form 14: SAVE pt consent

V.2.D. TOS payment display (Page)**Description:**

Screen to show the TOS payment that is due to the system.

Tasks:

Programming - Feature

8 hrs

Development

V.2.E. Patient Signature (Page)**Description:**

When the patient filled in the last question, he will need to input his signature. This will get added to the PDF-generated form.

If the patient is not yet done when a technician comes over, he will be instructed to press an 'Exit' button, which will first take the patient to the signature page, where he will need to sign that the information he wrote so far is all valid.

Tasks:

Programming - Feature

12 hrs

Development

V.2.F. Thank you page (Page)

Description:

Once the patient has signed, he will be taken to a thank you page. This page will have a button that will cause the app to return to the 'Rest Mode', awaiting a new login by a front-desk staff.

Tasks:

Programming - Feature

4 hrs

Development

VI. Technician Mode (Section)

Description:

This will be a separate version of the app, used by Technicians only.

Description will follow once the scoping is determined.

VI.1. Enter PIN Page (Page)

Description:

Similar to how the Lobby Mode works, the Enter PIN page can be accessed upon tapping a button on the 'Resting Page'

It will contain a single input field where the PIN can be entered and an 'Access' button.

VI.1.A. PIN functionality (Feature)

Description:

Each member of the front desk staff will have their own PIN.

The PIN will be used by the technician to enter the 'Find patient' screen.

Each RIS Core user will get a **unique** PIN number attached to their account.

Tracking will be done in RIS through the PIN number, so each time a technician chooses a patient in the app or edits its forms, we will log these actions against the appointment.

VI.2. Find Patient (Page)

Description:

Similar to the Lobby Mode Find Patient page, this will contain a list of patients, a search field and a modal that opens when a patient's name is tapped on the screen, allowing the technician to select it.

VI.2.A. Patient Lists (List)

Description:

The Find Patient page will contain 4 tabs with lists of patients:

- Patients that have registered but haven't started filling out the forms
 - appointment status is "patient is here"
 - sorted by date ascending
- Patients that are here and have received a tablet, but haven't yet completed registration
 - appointment status is "patient is here"
 - sorted by date ascending
 - patient is currently logged in the app lobby mode and filling in data
 - we could also try showing a progress bar for each patient so we can see how many questions he still has left to answer.
- Patients that have completed the registration but didn't yet perform the exam
 - appointments that are register

Each patient list item will contain:

- Patient name
- Patient dob
- Last 4 of SSN
- A list of today's scans (along with the scheduled time for each one), color-coded

Tasks:

Programming - Feature

8 hrs

Development

VI.2.B. Search Patient (Feature)

Description:

We would also display a 'search' field that would allow the user to search by name through all of the

patients scheduled today. The search field will use **autocomplete** function.

The search results will be displayed using the same template as the Patient Lists page described above.

VI.2.C. Patient Modal (Modal)

Description:

When tapping on a patient, we will open a modal showing the full patient file, along with the following fields:

- Patient name
- Patient dob
- Weight
- Height
- Phone number
- Address
- Last 4 of SSN
- Insurance information
- Prior scans - list
- A list of today's scans (along with the scheduled time for each one), color-coded

The modal will also contain two buttons:

- Select Patient -> Starts Patient Flow
- Back -> Moves user back to Find page

VI.3. Generated Forms (Page)

Description:

The Technician mode will generate exactly the same questions as the ones that the patient would see.

The difference is that all the questions will be displayed on the same page, in a condensed mode (yet still easy to use).

We will highlight (with a red border for example) any unanswered questions or missing fields, and the technician can fill them in and thus removing the highlight.

Tasks:

Programming - Feature

46 hrs

Development

VI.4. Technician Signature (Page)

Description:

When the Technician is done with the form, he will need to sign the form.

This needs to happen every time the Technician submits a form, and the signature needs to be added to the auto-generated PDF with the form submission.

Tasks:

Programming - Feature

6 hrs

Development

VII. RIS Core integration (Section)

Description:

In order to connect with the RIS system, each user id will be able to set a **unique** pin number for their account.

This will be used in the app to authenticate and show the list of users.

The app will not allow any access if the tablet request doesn't contain the correct network information

VII.1. Form generator module (Feature)

Description:

We will need to implement a way to configure each form within the RIS, and this will ultimately drive the questions that appear in the tablet.

In order to achieve this, we will need to input each individual question in the database (only once), and then we would define each 'form' as a set of questions, in a particular order.

Each CPT code would then be configured to require one or more of these new forms, and this way we will identify the full list of questions that a procedure requires.

When the tablet requests the forms for a patient, we will look at the forms that are required, grab all of the questions and send them (each question only once) to the tablet, in the order set in the admin section.

Tasks:

Programming - Feature

44 hrs

Development

VII.2. Form listener module (Feature)

Description:

As the questions are answered on the tablet, the tablet will send each answer back to the RIS, which will store each individual answer in the database.

When the signature is added, we will also upload this to the RIS and save it in the database.

This same module will also be used when the Technician fills in the app.

Tasks:

Programming - Feature

20 hrs

Development

VII.3. PDF Form export module (Feature)

Description:

At any point after the first questions were answered, the RIS will allow anyone with access to the appointment to see and download the forms associated with that appointment.

These will contain the answers to each question, as well as the signatures of the patient and technician.

Each form will require a template built that will get filed in with the answers to each question.

Tasks:

Programming - Feature

45 hrs

Development

VII.4. Tablet Registry (Feature)

Description:

We need a new section in the RIS admin where the admins will be able to add each tablet's IMEI number, as well as the office that the tablet will be used in.

The tablet won't work from a different IP than the office's

Tasks:

Programming - Feature

16 hrs

Development

VII.5. API calls (Feature)

Description:

This section describes the API calls that the RIS will need to implement in order for the app to work (a few of these were already done for the other app). This list is most likely not complete as we may realize the app requires more calls than the ones below.

Legend: required, *optional*

- **authenticatePin** (pin, network) - authenticates the user via pin if the network the tablet is on is correct
- **getPatients** (*status, sort, keyword, type*) - returns a list of appointments and their patients. Type is upcoming or past.
- **getPatient** (appointment_id, network) - returns the selected patient info
- **getForms** (appointment_id, network) - returns a list of question ids and answers. The answers could be from the patient file or if the form was partially or fully filled.
- **saveAnswer** (appointment_id, question_id, answer, network) - saves the answer in the DB
- **saveSignature** (appointment_id, type, network) - saves the signature for patients and technicians
- **pushNotification** (appointment_id, pin, question_id) - causes RIS to send a push notification to the pin holder. The notification would also list the question the patient is stuck at.

Tasks:

Programming - Feature

24 hrs

Development

VII.6. Push Notifications (Feature)

Description:

RIS will send out Push Notifications to the RIS staff member that handed out the tablet (based on PIN codes), whenever the patient spends more than a set amount of time (configurable in RIS) on a particular page in the forms.

Tasks:

Programming - Feature

25 hrs

Development

VIII. Phase 2 (Section)

Description:

This is a set of features that are still at the 'idea' stage and need to be scoped out better before we can estimate them

VIII.1. Scanner Integration (Element)

Description:

A lot of things(insurance cards, licences, etc.) will need to be scanned, saved as a PDF and attached to a patient's file. The tablet system needs to support that.

VIII.2. Financial Forms (Process)

Description:

These are currently being changed over to new forms for the Diagnostics centers, so we'll include those when we get them.

When they are completed, payment options should appear. The patient can pay by credit, debit, cash, etc.

The patient shouldn't be able to continue until payment is completed.