Requirements document for Home Watching Services (HWS)

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Revision History

Revision number	Date	Reason for revision	Revised by
1	03/25/2021	Initial Draft	A. Jahan
2	04/02/2021	Added section 8.1.6	M. Rashford
3	04/17/2021	Updated titles under section 8.4.2	P. Foden
4	05/03/2021	Released Draft rev1	A. Jahan

1. Scope statement

    1.1. The scope of this project includes a system that allows:
        1.1.1. Ability for clients to sign up and request services online
        1.1.2. Ability to automatically bill clients on a monthly basis with adjustments as needed
        1.1.3. Ability to automatically notify HWS employees and clients after receiving issue notifications from sensors in a client's property
        1.1.4. Ability to create, track and manage tickets for each issue at a client's property
        1.1.5. Ability to keep clients abreast of all issues at their property and its status
        1.1.6. Ability to slice, dice and report on current and past issues based on defined database parameters
        1.1.7. Ability to provide system administration to manage client status and other referential information

2. Out of scope

    2.1. There will be no ability to apply data analytics on the reported issue data
    2.2. There will be no ability to accept any other payment methods apart from credit cards
    2.3. There will be no ability to accept any credit cards that do not belong to the four major companies
    2.4. There will be no ability to automatically report technical issues with the sensors
    2.5. There will be no ability to integrate with marketing tools to profile the clients
    2.6. There will be no ability to setup individual permission scheme to access the system
    2.7. There will be no ability to import reported data into the company's ThinQ platform

3. Goals

    3.1. Build a system for Home Watching Services (HWS) that expands its business and gains the business more clients in its home and neighboring towns.

4. Objectives

    4.1. Build an online system to allow potential clients to sign up and request service
    4.2. Integrate existing business processes with the new online system to efficiently respond to any issues at a client's property
    4.3. Improve incident management at any client's property by integrating visibility, responsibility, reporting and billing within the new online system
    4.4. System must respond quickly and must be easy to use, especially for a broad array of clients

5. Risks

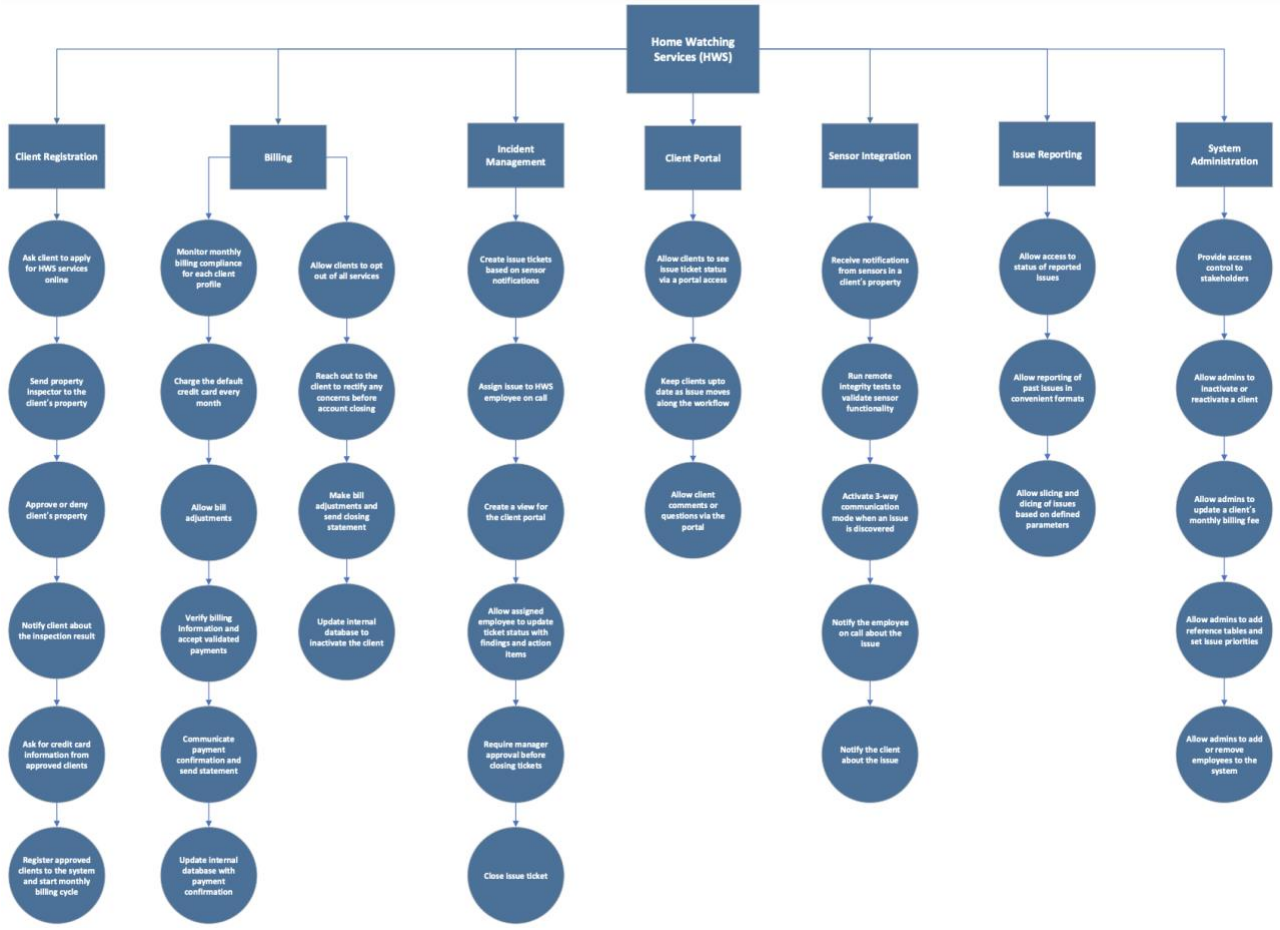
    5.1. The technology to integrate sensors with the new application has not been proven yet fueled by the technical staff's admitted concerns regarding this integration. This may affect the timeline and budget of the project.
    5.2. The owner of the business, JP Lyons, might not be readily available for meetings due to his client engagements. This may affect the timeline of the project.

6. Constraints

   6.1. The online and logistics system must go live in 8 months to maximize the competitive advantage with the new integrated system.
   6.2. The budget is limited to the $250,000 paid in capital by the business.
   6.3. The scope has been reduced to the basic necessities of the system and cannot be cut further.

7. Decomposition diagram

   7.1.



8. Functional requirements

8.1. Client Registration

8.1.1. Ask client to apply for HWS services online

8.1.1.1. The system shall require the client to enter personal and property information for registration

8.1.1.1.1. The system shall allow the client to enter multiple properties during the same registration session

8.1.1.2. The system shall require the client to register with a unique email address that is not in the system already

8.1.1.2.1. The system must verify the provided email address against the existing database

8.1.1.3. The system shall require passwords to be at least eight characters long with a mix of alphanumerical characters

8.1.1.4. The system shall create the client profile in the system

8.1.2. Send property inspector to the client's property

8.1.2.1. The system shall automatically send notifications to the HWS management team about a client sign up so that the team can send an inspector to the client's property

8.1.3. Approve or deny the client's property

8.1.3.1. The system shall allow the inspector to approve or deny the client's property based on the inspection being successful or unsuccessful

8.1.4. Notify client about the inspection result

8.1.4.1. The system shall automatically send notifications to the client regarding the inspection result

8.1.4.1.1. The system shall detail the next steps in the correspondence to the client

8.1.5. Ask for credit card information from approved clients

8.1.5.1. The system shall send a portal to the client to collect credit card information

8.1.5.2. The system shall require the clients to enter their credit card information to continue with the registration post property approval

8.1.5.3. The system must verify the credit card information and billing address via a secure payment server and rely on ISO/IEC standards

8.1.5.3.1. The system shall ask the client to fix necessary information if the verification fails. For example, credit card number more than 19 digits or CVV more than 3 digits

8.1.5.3.2. The system shall only accept major credit card vendors. Namely – VISA, MasterCard, AmericanExpress and Discover

8.1.5.4. The system shall display payment processing confirmation and communicate registration confirmation to the client

8.1.6. Register approved clients to the system and start monthly billing cycle

8.1.6.1. The system shall add the approved client to the internal database and create a billing profile with all payment information

8.1.6.2. The system shall start the billing cycle at the current date on a monthly basis

8.2. Billing

8.2.1. Monitor monthly billing compliance for each client profile

8.2.1.1. The system shall monitor and ensure all bills are paid monthly for each client profile

8.2.1.2. The system shall look for bill adjustments from an approved list of services

8.2.1.3. The system must report any discrepancies in bills to the system administrators

8.2.2. Charge the default credit card every month

8.2.2.1. The system shall charge the client's default credit card at the start of each monthly billing period

8.2.3. Allow bill adjustments

8.2.3.1. The system shall allow HWS employees to adjust bills if the client received additional services or the client needs to be credited

8.2.3.2. The system must verify employee access permission before allowing bill adjustments

8.2.4. Verify billing information and accept validated payments

8.2.4.1. The system must verify the payment information and billing address via a secure payment server

8.2.4.2. The system must accept only validated payments

8.2.4.2.1. The system shall notify the client to update credit card information if a payment is not accepted

8.2.5. Communicate payment confirmation and send a statement

8.2.5.1. The system shall create a transaction statement for each monthly period

8.2.5.2. The system shall notify the client with the statement after each billing period is charged

8.2.6. Update internal database with payment confirmation

8.2.6.1. The system must update the internal database with any payment confirmations in the client profile

8.2.7. Allow clients to opt-out of all services

8.2.7.1. The system shall allow the clients to opt-out of all services at any time during the billing cycle

8.2.7.2. The system shall allow the client to opt-out using the client portal or via phone

8.2.8. Reach out to the client to rectify any concerns before account closing

8.2.8.1. The system shall automatically send correspondence to the client providing information about the HWS account manager

8.2.8.2. The system shall allow the client to respond to the automated correspondence if they wish to get in touch with an account manager

8.2.9. Make bill adjustments and send closing statement

8.2.9.1. The system shall make adjustments to ongoing monthly bill and

8.2.9.2. The system shall prepare a collective account closing statement

8.2.9.3. The system shall notify the client confirming the account closing with the statement

8.2.10. Update internal database to inactivate the client

8.2.10.1. The system shall update the internal HWS database to inactivate the client

8.2.10.2. The system shall notify the account manager about the account closing

8.3. Incident Management

8.3.1. Create issue tickets based on sensor notifications

8.3.1.1. The system shall receive notifications from sensors in client properties

8.3.1.2. The system shall verify the notification has an error code with the cloud database

8.3.1.3. The system shall automatically create issue tickets in the internal HWS portal

8.3.1.3.1. The system must record the sensor ID, sensorType and EventTime while creating a new issue ticket with a unique issue key

8.3.2. Assign the issue to the HWS employee on-call

8.3.2.1. The system shall identify the employee on-call based on the schedule reference table

8.3.2.2. The system shall assign the issue ticket to the appropriate assignee

8.3.3. Create a view for the client portal

8.3.3.1. The system shall automatically create a view for the issue ticket in the client portal

8.3.3.1.1. The system must provide assignee, property and sensor timing information in the client view

8.3.4. Allow assigned employee to update ticket status with findings and action items

8.3.4.1. The system shall require the assignee to update the status of the ticket with findings and action items

8.3.4.2. The system shall notify all watchers of the issue and the client with any updates

8.3.5. Require manager approval before closing tickets

8.3.5.1. The system shall identify the assigned manager for the issue using the manager reference table

8.3.5.2. The system must require an approval by the assigned manager before a ticket is closed in the portal

8.3.6. Close issue ticket

8.3.6.1. The system shall close the issue ticket in the internal HWS portal

8.3.6.2. The system shall notify all watches and the client accordingly

8.4. Client Portal

8.4.1. Allow clients to see issue ticket status via a portal access

8.4.1.1. The system shall allow clients to access a portal where they can access the status of the issues at their property

8.4.1.2. The system shall ensure the portal is easy to access and clients can access it with the same email they provided during account registration

8.4.2. Keep the clients up to date via the portal as the issue moves along the HWS issue workflow

8.4.2.1. The system shall keep the clients in the loop via the portal as the issue moves along the HWS issue workflow

8.4.2.1.1. The system shall notify clients of status changes, new findings and new action items

8.4.3. Allow client comments or questions via the portal

8.4.3.1. The system shall allow clients to use the portal provide comments or ask questions at any status of the issue

8.4.3.2. The system shall allow employees to respond to client's concerns via the portal

8.5. Sensor Integration

8.5.1. Receive notifications from sensors in a client's property

8.5.1.1. The system shall automatically receive notifications from sensors installed in a client's property

8.5.1.2. The system must capture Sensor ID, Sensor Type and Event Time in addition to other important data

8.5.2. Run remote integrity tests to validate sensor functionality

8.5.2.1. The system shall remotely run the company standardized "integrity tool" twice a week to validate proper functionality of the sensors

8.5.2.2. The system shall report any integrity issues to the management team as soon as the integrity tool test fails

8.5.3. Activate 3-way communication mode when an issue is reported

8.5.3.1. The system shall activate the company standard 3-way (System – Management – Client) communication mode as soon as an issue notification is received from sensors in a client's property

8.5.4. Notify the employee on-call about the issue

8.5.4.1. The system shall identify the employee on-call from the schedule reference table

8.5.4.2. The system shall notify the employee on-call about the issue as a part of the 3-way communication protocol

8.5.5. Notify the client about the issue

8.5.5.1. The system shall identify the appropriate client from the client reference table

8.5.5.2. The system shall notify the client about the issue as a part of the 3-way communication protocol

8.6. Issue Reporting

8.6.1. Allow access to status of reported issues

8.6.1.1. The system shall allow HWS employees to access the status of all active or open issues

8.6.2. Allow reporting of past issues in convenient formats

8.6.2.1. The system shall allow reporting on past/historical issues within the portal

8.6.2.2. The system shall allow exporting of historical reports in standard formats such as excel, pdf, etc.

8.6.3. Allow slicing and dicing of issues based on defined parameters

8.6.3.1. The system shall allow slicing and dicing of issues based on defined database parameters

8.6.3.2. The system shall allow nested sorts and filters to be stored as fixed queries

8.7. System Administration

8.7.1. Provide access control to stakeholders

8.7.1.1. The system shall provide an access control management tool where stakeholders can assign system administrators

8.7.1.2. The system shall allow the creation of groups that share the same permission scheme

8.7.2. Allow admins to inactivate or reactivate a client

8.7.2.1. The system shall allow the system admins to make a client profile inactive after the account is closed or reactivate a client profile if they come back

8.7.2.1.1. The system must verify the admin credentials before allowing the action in 8.7.2.1

8.7.3. Allow admins to update a client's monthly billing fee

8.7.3.1. The system shall allow the system admins to update monthly billing fee for a particular client

8.7.3.2. The system shall allow applying credits to a client profile

8.7.3.3. The system must verify the admin credentials before allowing the action in 8.7.3.1 and 8.7.3.2

8.7.4. Allow admins to add reference tables and set issue priorities

8.7.4.1. The system shall allow admins to add a system-level schema by defining reference tables

8.7.4.2. The system shall allow admins to priorities issues into customized views

8.7.5. Allow admins to add or remove employees from the system

8.7.5.1. The system shall allow admins to add or remove employees from the system

8.7.5.2. The system shall provide a user management portal with details about all the active and inactive employees

9. Nonfunctional requirements

9.1. Response time

9.1.1. The system shall have the standard industry response time of less than 5 seconds

9.1.2. The system shall recognize and allow 2.5 times faster performance during off peak hours

9.2. Security

9.2.1. The system shall encrypt all personal and payment information

9.2.2. The system shall deploy SSL for credit card processing

9.3. Storage

9.3.1. The system shall require 500TB of data storage

9.3.2. The system shall allow up to 1 million client accounts

9.4. Backup

9.4.1. The system shall backup client, property and employee catalogs once every 12 hours

10. Stakeholders

10.1. JP Lyons – Business Owner

10.2. Jack Lyons – Assistant to the Business Owner

10.3. Lee Scott – Operations Manager

10.4. Phil Foden – Director, Client Relationships

10.5. Marcus Rashford – Senior Client Executive

10.6. Aarif Jahan – Team Lead, Web Development