Garner Transportation Group Employee Portal

by

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Abstract

This implementation of a SharePoint intranet acted as an employee portal for Garner Transportation Group. This intranet utilized SharePoint 2013 as a base for highly customized functionality that pulls user generated content to the homepage. Garner, as a growing organization, looked to scale its communication platforms and utilized an employee portal to facilitate digital communication. High priority communications included company news and alerts as well as an employee spotlight. From corporate to driver, the portal is a place where employees have the ability to become involved in the Garner family.

Introduction

Garner Transportation Group is a family owned, family operated logistics company with moderate growth and communication challenges. Garner holds many tools for accomplishing complicated routes and dispatching drivers, but lacked a place where the company can come together to collaborate and share information. Garner lacked a centralized system for employees and drivers to find public information quickly. Internal news articles, announcements, and important forms were difficult to find preventing essential communications from reaching all members of the company. Garner had identified that the most significant information included news, announcements, employee promotions/hiring, and HR forms.

Problem

Garner Transportation faced some unique communication challenges as the company grew. Collaboration within the corporate office is became strained as current tools failed to keep pace with the company. Corporate employees could not share files easily. Forms throughout the company were still paper processes and could be improved through digitization. Popular information like the employee handbook was difficult to find and in many cases paper only. Garner was looking for ways to increase the availability of important information and streamline business process.

Garner is in the midst of a hiring wave proving current communication platforms inadequate. New and experienced drivers lacked accessibility to corporate information. Due to the lack of communication capabilities, drivers were often unaware of company news and announcements. Training resources for drivers like policies and videos were difficult to find.

Garner wished to centralize this information to lead drivers in the best direction when encountering questions about policy. Overall, typical communication methods could no longer achieve the needs of Garner Transportation and they wished to implement a new tool to improve their capabilities.

Solution

The solution was a custom employee portal that resided on SharePoint 2013. The portal was a customized website with heavy branding themes Garner is familiar with. The colors, functionality, and usability took the family feel Garner is known for, and rolled them into an information sharing platform. The website utilized the out of the box functionality SharePoint provided and improved upon its capabilities through custom development to create a friendly look and feel for all employees to consume published content. The entirety of information displayed on the portal website was created, published, and hosted on SharePoint. Content contributors at Garner now have the ability to create new announcements, news articles, employee spotlights and share documents.

To reduce costs, SharePoint Foundation 2013 was the selected platform for the base of this project. For Garner as a small organization, SharePoint Foundation was a favorable product because there were zero out of pocket costs to the company for the software itself. As Garner was not a large organization, SharePoint Foundation was capable enough software to be utilized for this project.

Highlighted Custom Functionality

Utilizing SharePoint 2013 provided a nice base of functionality for Garner's portal. Additional development was added to this platform to highlight information that Garner felt was the real focus of the company. Custom HTML, CSS, and JavaScript were utilized to pull data from SharePoint and build a custom rollup on the homepage of the portal.

The employee spotlight was one of the highlights of custom functionality on Garner's new portal. The employee spotlight, shown in Figure 1, was a webpart highlighting one employee from the company and their accomplishments. The webpart pulls all of the data from a SharePoint list and builds a custom display including their name and hometown. A content contributor within Garner would write a title and a short bio congratulating the employee on their accomplishments. To update the employee spotlight, a content contributor at Garner would add a new item to the SharePoint list including the Employee's name, hometown, a title for the spotlight, a short bio, and attach an image. An example of the list item is shown in Figure 2. The most recent spotlight was then pulled to the homepage keeping the content fresh and exciting.

Figure 1. Employee Spotlight

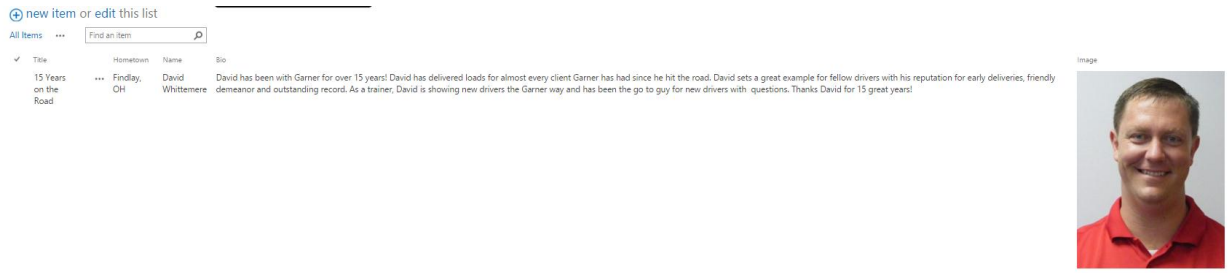


Figure 2. Employee Spotlight List Item

The news rollup webpart and news article pages were the larger areas of effort for custom development. The news rollup webpart automatically pulled the latest news article to the homepage based on the date of the article. Figure 3 shows an example of the news webpart. The display of the article included the title and hero image of the article. Clicking the title of the article navigated the user to a custom page with the full article, similar to Figure 4.

Figure 3. News Rollup Webpart

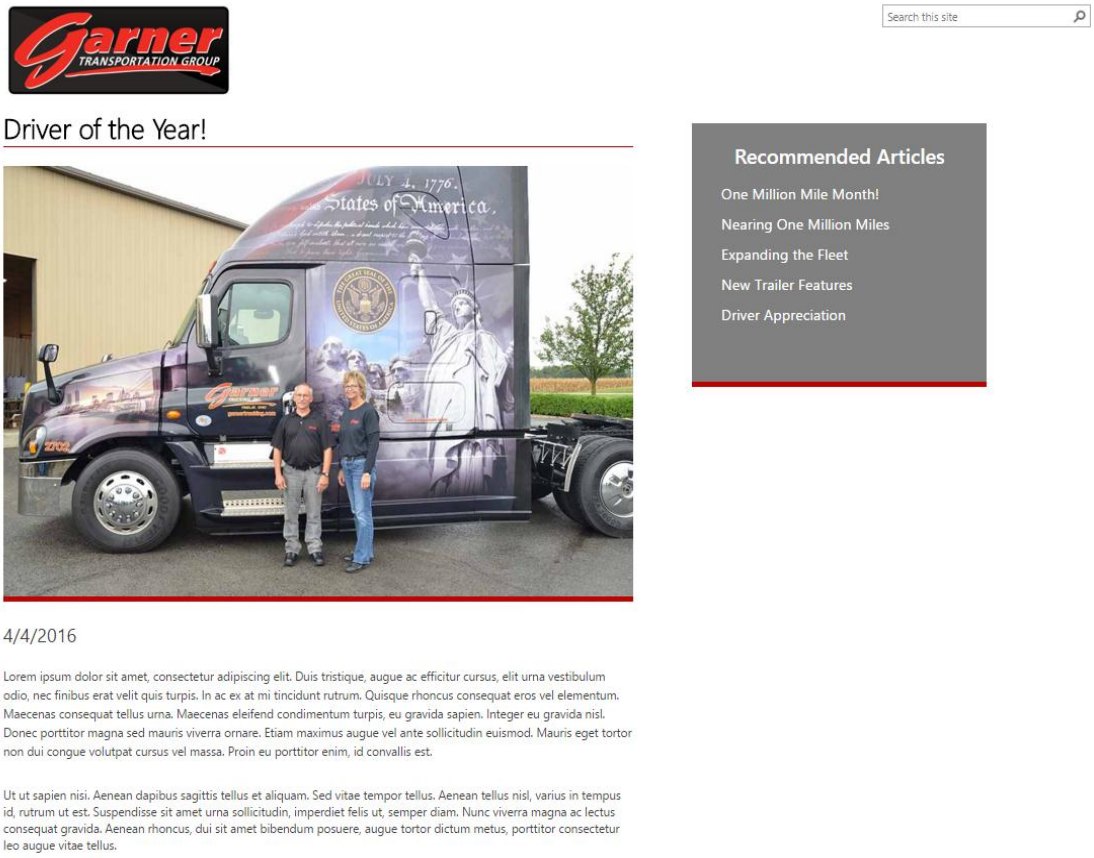


Figure 4. Full News Article Page

The news functionality utilized the SharePoint pages library to allow for user configurable pages. A custom content type was created within SharePoint. This content type included fields such as Article Date, Hero Image, Leading Text, Article Link, and the Page Content field. This custom content type was then associated to a custom page layout. This custom layout displayed the title of the article, the hero image, the article date, and the page content field. On the right side of the page, webpart zones were added allowing the addition of any webparts the content contributors decided to add. The news rollup webpart queried the Pages Library within SharePoint looking for only pages using the custom content type and custom page layout pulling the newest article to the homepage.

Similar to the employee spotlight, additional webparts were developed including Quicklinks, shown in Figure 5, and Announcements shown in Figure 6. Both webparts pulled from a list within SharePoint displaying the relevant fields to the users. Quicklinks pulled 6 items from the list, displaying the user the text of the links to click on. Announcements pulled the latest 4 items from the list. Clicking on the title of the announcement took the user to a page with the full details of the announcement. Phase I of the portal included only a few of the webparts that Garner will be developing. With SharePoint the number and types of webparts that can be developed are limitless and Garner will continue to add webpart based functionality to the portal in future phases.

Figure 5. Announcements Webpoart

Figure 6. Quicklinks Webpart

User Profile

This solution had one primary user role and two supporting user roles. The portal interfaced with Administrators, Content Contributors, and primarily end users, referred to as "visitors". Each role has specific functions within the site. Each required specific permission levels to accomplish their tasks. A breakdown of the User Profiles and their tasks can be noted below in Figure 7.

Visitors were the primary focus of the portal. They were the majority of the user base of the portal. The contents of the portal wre designed around helping visitors complete their tasks and reach information that pertained to them. End users had a very restricted, "read only", type access to the portal. End users will not be creating content for the intranet, but consuming it.

Content Contributors and Administrators were the supporting users of the portal. Content Contributors had tasks related to populating and maintaining the information hosted on the portal. Content Contributors created new content, updated old content, or deleted content that was no longer relevant to the end users. Content Contributors managed every aspect of the information the site holds and were responsible for all content across the site. Administrators were a very small subset of the user base. Administrators had "god" permissions in the system. They were responsible for maintaining SharePoint. Server and Farm architecture fell in the hands of the administrator. The administrator is knowledgeable about the ins and outs of SharePoint and supported Content Contributors on the workings and limitations of SharePoint.

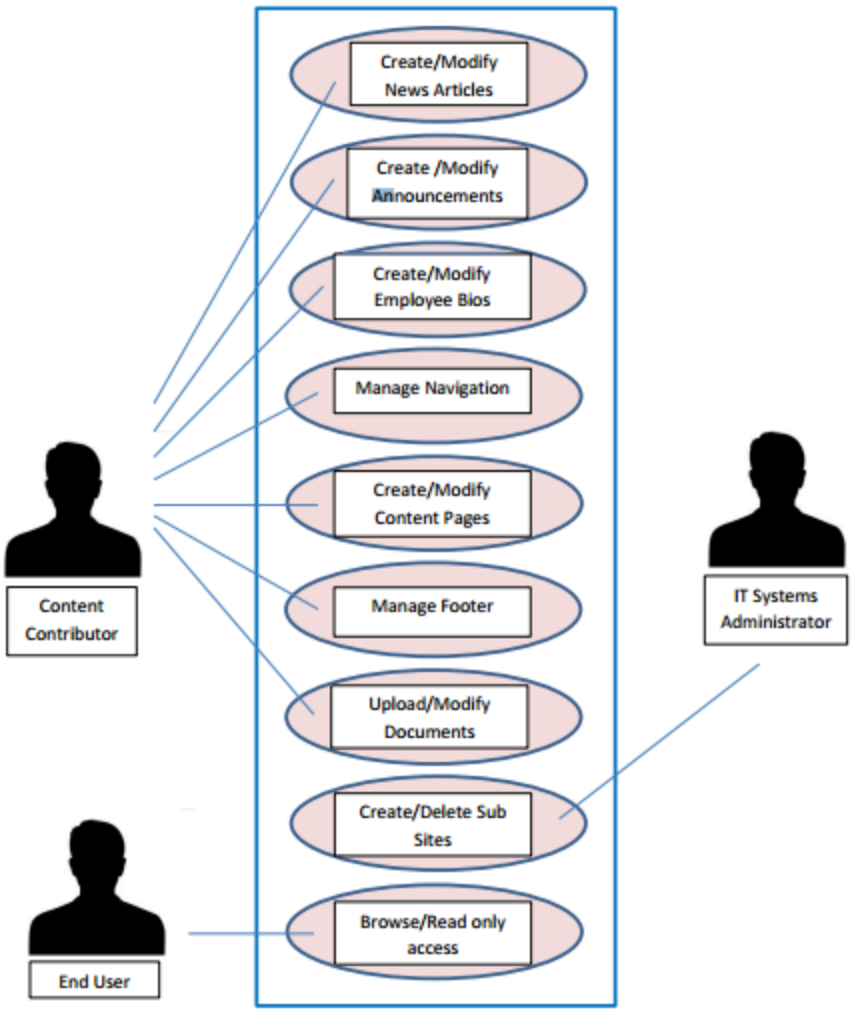


Figure 7. User Profiles

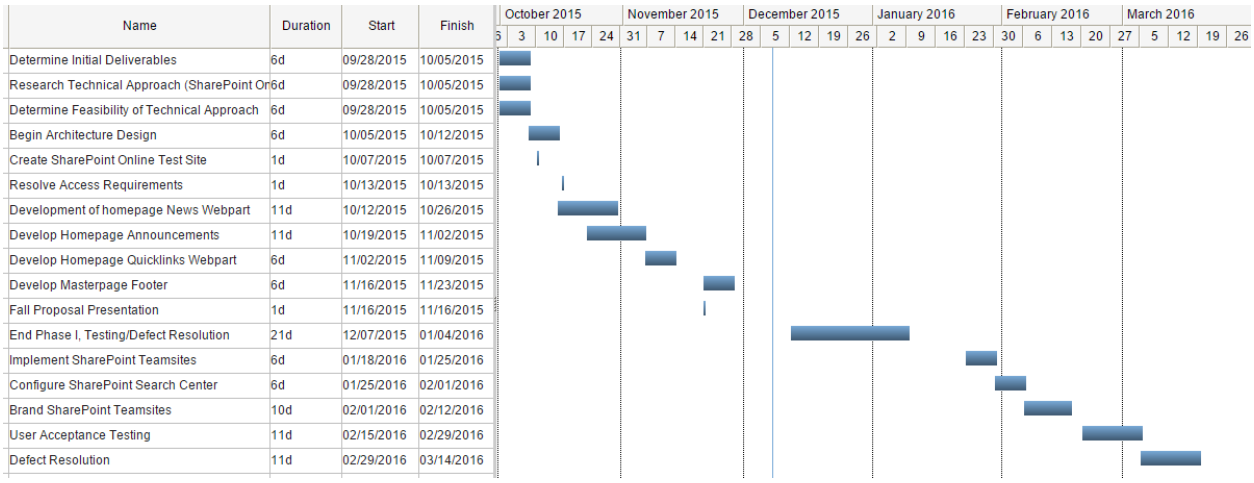
Project Timeline

The project development from inception to completion took 6 months as described by Figure 8 and Figure 9 below. The scope for phase I of the project was largely determined by the time in which Garner and the solution provider wished to rollout the portal. A tentative launch of

June 20th has been set. The timeline began with requirements gathering and completed with a final proposal presentation in April 2016.

Name	Duration	Start	Finish
Determine Initial Deliverables	6d	09/28/2015	10/05/2015
Research Technical Approach (SharePoint Online)	6d	09/28/2015	10/05/2015
Determine Feasibility of Technical Approach	6d	09/28/2015	10/05/2015
Begin Architecture Design	6d	10/05/2015	10/12/2015
Create SharePoint Online Test Site	1d	10/07/2015	10/07/2015
Resolve Access Requirements	1d	10/13/2015	10/13/2015
Development of homepage News Webpart	11d	10/12/2015	10/26/2015
Develop Homepage Announcements	11d	10/19/2015	11/02/2015
Develop Homepage Quicklinks Webpart	6d	11/02/2015	11/09/2015
Develop Masterpage Footer	6d	11/16/2015	11/23/2015
Fall Proposal Presentation	1d	11/16/2015	11/16/2015
End Phase I, Testing/Defect Resolution	21d	12/07/2015	01/04/2016
Implement SharePoint Teamsites	6d	01/18/2016	01/25/2016
Configure SharePoint Search Center	6d	01/25/2016	02/01/2016
Brand SharePoint Teamsites	10d	02/01/2016	02/12/2016
User Acceptance Testing	11d	02/15/2016	02/29/2016
Defect Resolution	11d	02/29/2016	03/14/2016

Figure 8. Project Timeline



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Development of homepage News Webpart	11d	10/12/2015	10/26/2015
Develop Homepage Announcements	11d	10/19/2015	11/02/2015
Develop Homepage Quicklinks Webpart	6d	11/02/2015	11/09/2015
Develop Masterpage Footer	6d	11/16/2015	11/23/2015
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Brand SharePoint Teamsites	10d	02/01/2016	02/12/2016
User Acceptance Testing	11d	02/15/2016	02/29/2016
Defect Resolution	11d	02/29/2016	03/14/2016

Figure 9. Timeline by Week

Proposed Budget

The budget for this project was represented as the cost of using external resources (estimated) and the cost of repurposing existing equipment and donated labor (actual). Actual server costs were undetermined as Garner Transportation investigated the possibility of using existing resources to fulfill the need. The developer hours for this project were student provided and add no actual cost to the project. The project was estimated at about 250 developer hours for completion based on scope and complexity. Developer rate was based the current rate for students in low level consulting positions.

Item	**Actual Cost**	**Estimated Cost**
Database Server	0	10,000
WFE Server	0	10,000
250 Developer Hours @ $50/Hour	0	125,000
Total	0	145,000

Figure 10. Project Budget

Road Blocks

The implementation of the portal encountered minimal risk. Risks that were encountered were marginal and mitigated in an appropriate manor. This implementation of the portal utilized an on premise server farm but Garner wished for the flexibility to migrate to SharePoint Online in Office 365 in the future. Each version of SharePoint comes with a set of limitations. SharePoint Online limited custom masterpages. This limitation was be avoided by injecting custom code into the masterpage. By utilizing this method, the portal remained available for a potential migration in the future. The final major limitation for the portal was the training of the content contributors for the portal site. SharePoint is an unknown product to many and users have little experience with the system. The limitation of SharePoint knowledge limited the effectiveness of the content on the portal. Training and documentation for the Garner employees was provided to empower them to take advantage of the full capabilities of the custom SharePoint portal.

Testing Approach

The testing plan covered the prep, execution, and results of unit and user acceptance testing(UAT). For the scope of this project, we defined unit testing as testing completed by the developer against the committed requirements for each piece of custom functionality on the portal. Functionality that had passed unit testing had received approval from the developer as development complete and believed to be defect free. We defined user acceptance testing as the final testing stage in which end users from the business tested the custom functionality on the portal. Custom functionality was tested to confirm the absence of defects and confirm that each functional piece met the needs of the business.

Expected Outcomes

The primary outcome of a unit test was a developer certified complete functional piece. A pass of a unit test certified that a piece of functionality is defect free and ready for user acceptance testing. A failure of a unit test resulted in additional development and defect resolution from the developer.

User acceptance testing(UAT) was the final testing and approval phase executed by the business designed to confirm the functionality met the requirements of the business and that the functionality was defect free. A pass of the test resulted in a production ready functional piece that met the business requirements and received no further development with the exception of emergency defect resolution. A failure of the test resulted in the functional piece returning to the developer to adjust for the miss in requirements or defect resolution.

Phase I

The first phase of testing included all functional pieces completed as of 3/1/2016. The first phase of testing was executed 3/1/2016 with a day of defect resolution on 3/2/2016. Each functional piece was unit tested. Discrepancies found in Phase I were resolved and re-tested by 3/3/2016 with the goal of each piece having passed unit testing by the end of Phase I. The results of Phase I testing are noted in Figure 11 below.

Functionality	**Expected Result**	**Unit Testing Result**(P/F)
Homepage News Webpart	Webpart that pulls most recent news item	Pass
Announcements Webpart	Webpart that pulls most recent announcements	Pass
Masterpage Footer	A footer that displays on every page	Pass
Masterpage Header	A header that appear on every page	Pass
Masterpage Alerts	Configurable alerts bar that displays on every page	Pass
Quicklinks Webpart	A webpart that displays 8 links and icons	Pass

Figure 11. Phase I Testing Results

Phase II

The second phase of testing included all functional pieces completed in the scope of this project. Unit testing of any outstanding functionality from Phase I was tested first followed by user acceptance testing. The second phase of testing was executed 3/21/2016 with three days of defect resolution from 3/22/2016 – 3/24/2016. Each functional piece had passed unit testing and was user acceptance tested. Discrepancies found in Phase II were to be resolved and re-tested with the goal of each piece having passed unit and user acceptance testing by the end of Phase II. The results of Phase II testing are noted in Figure 12 below.

Functionality	Unit Testing Result	UAT Result
Homepage News Webpart	Webpart that pulls most recent news item	Pass
Announcements Webpart	Webpart that pulls most recent announcements	Pass
Masterpage Footer	A footer that displays on every page	Pass
Masterpage Header	A header that appear on every page	Pass
Masterpage Alerts	Configurable alerts bar that displays on every page	Pass
Quicklinks webpart	A webpart that displays 8 links and icons	Pass
Employee Spotlight	A webpart that displays a spotlight of an employee including and image and a description	Pass

Figure 12. Phase II Testing Results

Testing Results

Unit testing and user acceptance testing both proved to be a valuable process to the project. In unit testing, all pieces of custom functionality met the requirements as written. Each piece fulfilled the proposed function in a custom display pulling data dynamically from

SharePoint. Through unit testing, it was discovered that some items on the page were loading much slower than others. While there was no requirement for load times, it was very obvious that the page load could be drastically improved. To improve page load, the queries back to SharePoint for data were changed to execute asynchronously. Using jQuery, the queries back to the SharePoint lists were set to all execute on page load rather than waiting for previous queries to run. The impact was significant causing almost all of the items on the page to load and display at the same time. After the change, the page load was significantly faster, and a better visual experience for the end user.

User acceptance testing also found improvements for the site. While all items passed meeting the specified requirements and no defects, additional improvements for the site were suggested. User acceptance testing showed that while the site does have the Garner theme, users respond much more positively to icon driven functionality. The current iteration of the site displayed high amounts of text and lacked a lot of icons related to the content. To compensate for this, the leading text for the news article webpart on the homepage was removed to draw users more toward the related image and title of the article. In a future phase, icons will also be added to the quicklinks and announcements webparts. For phase II an additional designer will be involved to help integrate a more icon driven design to the site.

Future Use Cases

The implications for a portal such as this can be scaled for any size organization. The functionality for this portal was developed in such a way that webparts are reusable for other portals. If a similar list architecture exists, the JavaScript would remain nearly identical. HTML and CSS could be modified with minimal effort to give a completely different look and feel to the same basic functionality of the site.

Employee portals encompass a lot of similar functionality. Functionality such as news, announcements, global navigation, footer, and quicklinks are all very common within employee portals. The backend for most of this functionality exists in this solution. With minimal effort, the display of these pieces could be modified to fit the brand of almost any organization.

Phase II Development

After the success of the first phase of development for the portal, Garner wishes to invest in more functionality to improve the experience for users within the company. Garner would like to focus particularly on supporting drivers who are away from the office, connecting them to the portal for access to relevant company information. Phase II would consist of configuring access for mobile devices to the portal as well as exposing the site to the internet for users on outside networks to connect to the portal. Authentication to the portal would be handled by existing domain credentials. Custom code would be added to configure the site in a responsive setting to support mobile devices. To accomplish the responsive design, an additional designer would be assisting in creating and implementing the new design across the site. Phase II is still in early requirements gathering and is likely to be bigger than Phase I of the project.

Conclusion

Through the out of the box features provided by SharePoint 2013 and customized display, Garner Transportation Group gained a completely new platform to host its highlighted communications. The employee portal is a hub for daily communication and collaboration. A custom homepage with a Garner feel that rolls up important information will greet employees as they use the team site or global search functionality to improve communication. Garner's new employee portal will be a place where all members of the company can become a part of the family.

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