Teesside University School of Computing, Engineering & Digital Technologies (SCEDT)

Business with Technology BSc Hons

In-Course Assessment (ICA)

Rapid System Development

CS1017-N

Event Registration System Application Documentation

Module leader: Dr Jo Noble

B1573381

2023

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Khalil Ur Rehman Curriculum Vitae

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Dynamic Business Technology BSc student and aspiring Digital Product Manager with extensive technical expertise, including web development, system design, databases, and graphic design. Proven ability to collaborate in group settings and complete individual projects. Adapt at employing diverse programming languages and tools, such as HTML, CSS, Adobe Suite, and Figma, demonstrating a comprehensive understanding of IT solutions. Eager to leverage skills and knowledge to contribute to business growth and excel in product development, presenting a positive image and showcasing a strong aptitude for specific roles within the IT industry.

Education

Business Technology BSC (First Year), Teesside University | SEPTEMBER 2022 – Present

- 1st year degree modules:
- Responsive Web development 1:1
- System databases and design 1:1
- Information security and cybercrime to be confirm
- Business Finance 70 %
- Business Enterprise to be confirmed
- Rapid Application Development to be confirmed

Business Management BA Hons, Foundation Year, Teesside university | SEPTEMBER 2021 – MAY 2022

Level 3 Advanced Technical Diploma in Plumbing Studies, Hartlepool College Further Education | SEPTEMBER 2020 - JUNE 2021

Level 2 Diploma in Plumbing Studies, Hartlepool College Further Education | SEPTEMBER 2019 - JUNE 2020

Level 1 Diploma in Plumbing Studies, Hartlepool College Further Education | SEPTEMBER 2018 – JUNE 2019

Ian Ramsey CE Academy | 2013 - 2018

GCSE:

- Math's - Grade 4
- English Language - Grade 4
- English Spoken Language - Distinction
- Combined Science - Grade 4
- Religious Education - Grade 4
- Product Design – C

Technical Skills

Microsoft PowerApps: Proficient in creating custom business applications using PowerApps, streamlining processes, and enhancing productivity for various teams and departments within organizations.

Database Management SQL: Excellent knowledge in SQL database management, designing efficient database structures, optimizing queries, and maintaining data integrity, ensuring optimal performance and reliability.

Graphic Design: Skilled in creating visually engaging designs for both print and digital media, utilizing design principles, color theory, and typography to produce compelling and effective visual communication.

Adobe Photoshop: Expert in utilizing Adobe Photoshop for photo editing, retouching, and manipulation, as well as creating graphics and designs for various marketing and promotional materials.

Adobe Illustrator: Highly proficient in using Adobe Illustrator for vector-based artwork creation, including logos, icons, and illustrations, demonstrating a strong understanding of the software's tools and capabilities.

Adobe XD: Excellent command over Adobe XD for creating user interfaces and interactive prototypes for web and mobile applications, ensuring seamless user experiences and visually appealing designs.

Adobe Lightroom: Skilled in using Adobe Lightroom for professional photo editing, organization, and management, allowing for efficient workflows and high-quality image output.

Figma: Expert in utilizing Figma for collaborative UI/UX design and prototyping, streamlining design processes, and enabling efficient communication within teams.

Draw.io: Proficient in using Draw.io for creating diagrams, flowcharts, and visual representations of processes and systems, simplifying complex information and improving understanding.

HTML & CSS: Highly skilled in developing responsive and visually appealing websites using HTML and CSS, adhering to best practices and web standards, ensuring compatibility across various devices and browsers.

Google Analytics: Demonstrating proficiency in leveraging Google Analytics to monitor website performance, analyse user behaviour, and provide data-driven insights to optimize digital marketing strategies and improve overall user experience.

Projects

Teesside University Student Futures Microsite

- Developed a Student Futures Microsite as an individual project for second-year placement students, aimed at enhancing engagement and interaction between students and future employers.
- Created requirements and design artifacts that captured the core clients' needs and purpose of the microsite and built it using HTML and CSS.
- Validated and tested the artifact against the microsite build, employing the Waterfall Model as the project management life cycle for its linear approach to software development, involving progression from requirements gathering to design, build, and testing.
- Performed various tests on the Student Futures work placements microsite, including functionality, usability, capability, unit testing, and quality assurance.

System Design and Database for Currys E-commerce mobile application

- In a group-based environment, designed and developed an effective solution for an eCommerce mobile application, focusing on system design and databases.
- Crafted artifacts and documented the proposed new system and draft designs, covering requirements, MoSCoW prioritization, user stories, use cases, sequence diagrams, class diagrams, and entity relationship models.
- Delivered a constructive and relational database solution for a given information system problem.
- Conducted analysis of robust UML model solutions that adopted the CRUD (Create, Read, Update, and Delete) methodology.

Work Experience

B2B & Mobile Customer Consultant July 2021 – Present

Curry's Mobile and Business | Stockton-On-Tees

- Provide outstanding customer experiences by guiding customers in selecting suitable products.
- Offer technical assistance to colleagues as needed.
- Manage contract administration, reconciliations, cash handling, and inventory control.
- Surpass personal and store KPIs, consistently exceeding performance and target goals.
- Employ Dixons Carphone PIE database for efficient operations.
- Adhere to Financial Conduct Authority regulations and company policies.
- Demonstrate strong interpersonal and communication skills.
- Proactively engage customers, effectively closing sales.
- Collaborate within sales team to provide exceptional customer service.

Customer Advisor/Team Leader

August 2020 – June 2021

Carpetright | Stockton-On-Tees

- Addressed customer emails and phone calls, effectively resolving issues.
- Directed a team of 6 members on a daily basis.
- Ensured exceptional customer service, offering professional and efficient advice.
- Abided by high-standard company practices and maintained brand requirements.
- Exhibited practical interpersonal and communication skills.
- Operated Carpetright CPOS database for streamlined processes.
- Implemented a basic CAD package to devise carpet cutting plans.
- Acted as the crucial liaison for the company, handling technical challenges, repairs, and balancing stock levels and finances.
- Routinely secured a position in the weekly Top 10 sales for the local region.

Customer Advisor
February 2020 - July 2020
B&Q | Stockton-On-Tees

- Addressed customer emails and phone calls, resolving wrong orders, delivery issues, warranties, exchanges, and refunds.
- Ensured excellent customer service consistently.
- Abided by high-standard company practices and maintained brand requirements.
- Collaborated with colleagues, confidently providing solutions to problems.
- Promptly attended to customer requests, meeting and exceeding store key performance metrics and expectations

Onsite Plumbing
August 2020 – June 2021
Engie

- Assisted qualified plumbers in preparing for jobs.
- Commissioned boilers and gas meters.
- Verified proper installation of bathroom suites and radiators according to required measurements.
- Completed RAMs (Risk Analysis and Management System) to a high standard.
- Evaluated theoretical knowledge of health safety for on-site work.
- Conducted leak tests on new and repaired systems, ensuring functionality and safety.
- Maintained plumbing tools for safe operating conditions.

Bright Mind Big Futures,

Stockton-On-Tees Borough Council

August 2018 – August 2019

- Served as lead assistant on the committee for various departments, including SBC correspondents, SBC cabinet meetings, libraries, business regeneration, environmental, and green spaces.
- Organized and hosted meetings every six weeks, proposing innovative ideas to attract young people to Stockton town.
- Promoted the local area using social media platforms.
- Captured professional photos and videos for Stockton Borough Council

Entrepreneur, Stockton Startup Program,

Stockton Business Centre

AUGUST 2017

- Served as lead assistant on the committee for various departments, including SBC correspondents, SBC cabinet meetings, libraries, business regeneration, environmental, and green spaces.
- Organized and hosted meetings every six weeks, proposing innovative ideas to attract young people to Stockton town.
- Promoted the local area using social media platforms.
- Captured professional photos and videos for Stockton Borough Council

Hobbies & interests

As a current Business Technology BSc student and aspiring IT Product Manager, I am impassioned about combining business and technology to develop innovative products and solutions. Outside of my studies, I appreciate attending various automotive events throughout the United Kingdom and capturing the excitement of these events through photography and videography.

My strong social media and content creation skills have enabled me to establish a strong online presence for my brand Visuals, as well as manage my father's online business, aRdTechnik. I am eager to pursue a career in IT product management, having learned to bridge the divide between technology and business as part of my degree.

In the future, I hope to combine my affinity for technology and automobiles with my expertise in IT product management to develop innovative products and solutions for the automotive industry. Currently, I am restoring a Volkswagen Golf MK2 16V GTI, which has allowed me to improve my problem-solving, project management, and technical skills. I use my car as transportation to attend automotive events and exhibit my photography talents.

My ultimate long-term objective is to establish my own online business offering specialized services and goods to fellow auto enthusiasts. Through this company, I expect to make a significant contribution to the automotive industry while simultaneously pursuing my passion for automobiles and technology.

References

Available on request.

Introduction

1.1 Purpose

This documentation will be the Requirements specification for the Event Registration System. It will contain a detailed functionality requirements and further support requirements to have initiate a protype for the event registration. This specification of requirements will have intended to serve a purpose for effectivity communicating to the users' requirements to the developers and will provide a good interpretation for the client. The requirements specification will be development over time as the users and developers will work collaborative to meet the validation, verification of the event registration System.

1.2 Audience

This requirements specification is for variety of audiences, which would be the following: Client (Teesside University), as well as the project manager, designers, developer and tester.

- The **Client** will use this requirements specification to cross reference that the developer has created a product is acceptable to its guest attending the Expo-Tees Exhibit.
- The **Project manager** of the developer will be using this requirements specification to plan increments and delivery date, ensure that the developer is on track during the development of the System.
- The **Designer** will be using the requirements for creating the System design. The designer will need to refer to the requirements specification to meet the criteria.
- The **Developer** will be using this requirements specification as a basis for developing the system's functionality. The developer will the requirements specification that are stipulated within the requirements specification to ensure that the System will fulfil all the users' documented within the requirements.
- The **Tester** will be using this documentation to create test plans and test cases for each documented requirement. This will be completed when the System is built, the tester will run his test on the System to ensure the System fulfils the documentation of the requirements specification.

1.3 Scope

This documentation will address themes in terms of Event registration system- This will be System interface of event registration that will allow guest of the event to sign in on entry as well as store the details to generate a visitor badge as well as produce a summary of data to capture understand the number and range of visitors and companies attending the Expo-Tees event. Furthermore, for the client (Teesside University) it is important for the client If the guest of the event all allow to capture the information for regarding any future endeavours with other events that they run within Teesside University.

1.4 Out of scope

This will only be developed for guest that didn't sign up to the Eventbrite registration "passing members". I will not be using the Eventbrite data generated for the prebooked visitors.

1.5 Rational

Teesside University host an event for expo- tees which is a final year undergraduate and postgraduate showcase of (**SCEDT**)- School of Computing, Engineering and Digital Technologies. This is highlighting students work from all disciplines which this is over two days. Day 1 is Animation, Games and Concept Art, Day 2 – Computing, and Engineering. Future employers attend the event and view the exhibits and chat to the students with intentions of recruiting. The current way of registration is via a third-party registration system Eventbrite.

When attending the event, they must go through the reception to receive a pre-registered name badge with name and company name and role with company (**Appendix A**). Eventbrite creates the preprinted name and lists. This is solution has not worked according to the client (Teesside University) due to some people are register via Eventbrite and turn up on the day, the registered guest brings extra guests (un-registered) colleagues with them. This has created a long queue to the event at the reception while names are quickly written onto blank badge and details are not correct captured to the standard of Teesside university polices which they must abide to as been open to the public domain.

Teesside University are demanding to be central for exhibits for students as well as employers to recruitment. This is needed to be customized System to help the registration process to events. This is the system request that comes into play for ease for registration to help gain the number of visitors and companies address prepare for future Expo-tees to implement more interaction with guest attending for future endeavors regarding Teesside University.

2.Requirements specification – Research

2.1 Introduction

The beginning phase of collating the requirements for the event registration system. The definition of how the protype application will begin and what the project scope and subject of problem will come to a solution. The objective of this phase of requirement gathering will be identifying the needs and conflicting requirements among the clients' departments of the system project (Mehta and Sood, 2023).

I will be considering the following factors relating to requirement gathering phases:

- Identifying the stakeholders within the system.
- Asking the first questions
- Assessing the multiple viewpoints
- Collating requirements

2.2 Stakeholders within the Event registration system

The stakeholders can be individual person or group who the system can have an impact on a direct or indirectly. Hristov and Appolloni, (2022) states that stakeholders can include the end users who interact with the system and everyone else within the organisation that can have an impact by its establishment.

To identify the Stakeholders within this systems project, I have consulted with the principal lecturer in computer science and external event of exhibition direct Dr Joanne Noble and asked the following questions:

- Who will be using the system?
- What is the current process in place?
- What do you require from the new system?
- What information would you like to be stored?
- Do you require any authentication and security requirements build within the system?
- Do you have a theme or a design requirement that you would like to include within the system?
- What parameters would need to ask when signing into the event?

Overall, I would like to conclude on stakeholders for the Event Registration system: Client (Dr Joanne Noble the facilitator of the Expo-Tees events acting behalf on Teesside University): This member will be providing the guests as well as the interaction with the guest. The direct influence of the facilitator of the event will play an influence within the registration process as well as head count for people within the Expo-Tees event.

1. End to end users (guests attending Expo-Tees event):The largest user group of the registration system. They will be accessing this system by signing on into the event and receive a pre-print badge with the vital information.

2. Administration & Marketing event coordinators Team: They will be using the registration to organise and generate more leads of guest information as well as using the data and information collected from the Expo-Tees event to communicate and provide updates towards there for future endeavours of event and projects Teesside University would like to work within their sector of the business.

2.3 First Question

Addressing the context of the first questions that focuses on the users' and other third parties with the system project, this can provide a good standard of requirements of a measurable aim of objective that can have great succession of implantation(Khatib et al. 2022). As well as adhere to the question mentioned above. I have articulated these questions to help have alternative views to make the system have more of a tailored solution. However, I did gain a great benefit from understanding alternative viewpoints of problems that have occurred within previous Events of the Expo-Tees and this allowed the guest to have a voice of his and her interpretation about the solution.

These final set of question which will be vital and focused on the effectiveness of the communication of this development of the system requirements.

2.4 Assessing the Multiple viewpoints.

I have collected these viewpoints from Teesside University using the following areas client, End to end users, Administration & Marketing event coordinators Team.

1. **Client:**
   - User friendly.
   - Maintain an easy-to-understand databases.
   - Able to print a name badge with label the group of guests' attending the event.
   - Easy to use.
   - Highly reliable with no errors or latency issues.
   - Easy to navigate menus.
   - Accessibilities build into the application.
   - Single application for Client and guest to access the event registration.

2. **Administration Team:**

- Maintain an easy-to-understand databases.
- Easy access of data received from the Expo-Tees event.
- Can see data in real live time of the sign in guest.
- Data base can be exported into a file type they can read I.e., XML, XLSX etc.

1. **End to end users:**

    - Accessibility to all users' when using the application.
    - User friendly.
    - The application access will be through an iPad.
    - intuitive and minimalist interface to use for the guests.
    - Fast application with no delays
    - Easy to sign in and add correct details in the correct fields.

2.5 Collating requirements

The stakeholders associated to Teesside University has each of their own requirements in placement. I have taken an executive approach to merge these system requirements:

- Identified the common & coincide requirements.
- Categorize these into importance.
- The prioritization of each individual point from the stakeholders on based on each viewpoint.
- Concluding to a final and decision about the system requirements.

2.6 Common Requirements

- Cloud based solution.
- User friendly.
- The application access will be through an iPad.
  intuitive and minimalist interface to use for the guests.
- Fast response rate when signing into Expo-Tees.
- A single application when all users can use.
- Maintain an easy-to-understand databases.
- Able to print a name badge with label the group of guests' attending the event.
- Accessibility to all users' when using the application.

2.7 Coincide requirements.

- Fast response rate with no errors or latency.
- Easy to access.
- Integrate Authentication when guest sign into the event without failure.
- Allow users with this have application to have restrict access.
- Simple interactions with the signing into the event to simple gestures on the iPad.
- The use of too many menus or toggle or fields to be input by the users' when attending the event.

2.1 Final System Requirements

The system should allow the users' to:

- This system will be one application for guest to sign in when attending the expo-Tees event as well as having another domain to show guest of the event signing into the Expo-Tees event.
    - The reason for one system is due to the streamline and ease of use of all actors to use the application as well as it may be attached to the Teesside University CRM (Customer relationship management) that the administrator's actor will be using to send data that is retrieve from the event.
    - To expand on this can be seen live as real time data as guest sign on the application via administrator domain which will have a login in authentication which the university staff member can login using their own credentials.
- The Event registration system should allow up to 10 guest to book due to the client requirements for the expo-tees event. However, this can be a proposed number as default this can be alter in further development.
- Sign into the Expo-Tees event with an easy and quick response. This can be generated by entering the following details:
    - FirstName
    - Surname
    - Email address
    - Job Title
    - Company
    - Are they recruitment companies or browsing?
    - Types of recruitment companies
    - Capturing details for future endeavours for the event or opportunities with Teesside University
    - Subject area is important to administrators or marketing.
- The system should allow to Store guest data input within the event registration application overtime with the consent of the guest attending the Expo-tees event, adhere to the Privacy policy of Teesside University.

  However, if guest tick the box, they wouldn't like to share data and give consent of not wanting to participate with Teesside the detail wouldn't be send to the system.

- Generate a Name badge at the pre-registration phase of Expo-tees event with a suitable flag of identifying the type of guest.

    - Recruitment company
    - Company from variety of different industries.
    - General public (parents or families or students or general public)

- This generated response can be achieved by using easy toggle box and easy drop down and some menus with typing interaction for the guest.

- If a guest would like to scan or capture, there business card for Teesside University that can be executed by a simple photo of the business card or a single scan of a QR code of a business card. This can be optional decision for the guest and if the guest didn't want to use it due to the time contrast they may skip the option to move to the final stages due to the parameter of the PowerApps application it is not possible current for a camera system, however it may be considered in the near future when Microsoft has release a new configuration for the camera and scan function to be optimal and can be added .

- The generated data from the sign in process should allow to copy data if the guest is from the same company with a different title role.

- App based interfaces on the following device of an iPad with the use of an onscreen keyboard.

- Allow Administrators and Event coordinators of the system to change users to configure data to parameters of events basis of the event registration system. This can be organised within an easy to understand of the following:
    - Amount of people attending the event?
    - Which sector they have attended from ?
    - What department that they attending?

- Restrict access of functionality of the system based on the variety of users. The access of Data recorded from the event and statistics should only allow access to administrators related to the client (Teesside University department). The access for guest shouldn't not be accessible throughout the system.

- When the guest has inputted all detail have a final confirmation button to submit form and restart form for next guest without showing previous guest details. This can be achieved with another counter measure with a quick refresh back to the main screen.

Design Element of system requirements

- The details field need to have a simplistic menu system which can be typed in using a finger motion across the tablet device.
- Have an accessibility inbuild with the system, if guest may have any hidden accessibility issue, they may face issue with interfaces within the application.
    - Font - Typefaces - clear and visible.
    - Colours- not too overpowering to the human eye.
    - Size- able to zoom into text if required.
- The system will need to have simple but effective branding of Teesside University branding as student future to promote the event they are sign into as well as the personal and professional impression it gives on guest that attend. This will be achieved by the follow:
    - Logos of the following: Teesside University and Student futures and expo Tees.
    - Colour scheme of Teesside University and Student futures and expo Tees.
    - Branding needs to be size correctly to the iPad size with more of a linear approach.

Conclusion

The use processing of development and research to establish a basic understanding about Event registration system, identifying the users' who will gain huge success if the event registration system is established well within the Expo-Tees event as well as effectivity communicate to the stakeholders. To conclude I have collated and organised the system requirements into the correct parameters for the use case model diagrams as well as Data dictionary and wireframes. I will be identifying the actors within the system to simulate each scenario model for the event registration system.

3. Use case specification

3.1 Select Attendee Type

Use Case ID:	UC_01
Use Case Name:	Select Attendee Type
Brief Description:	This use case describes that how the user describes the type of the guest he/she is by selecting the attendee type.
Actors:	Guest
Pre-conditions:	User's device must be connected to the network.
Main Flows:	**1.** User clicks on the returning to the guest option. **2.** System displays the guest check in screen. **3.** User selects the Attendee type. **4.** System displays the check-in according to the attendee type.
Post-conditions:	User successfully selects the attendee type.
Alternative conditions:	No Alternative condition

3.2 Check-in as company

Use Case ID:	UC_02
Use Case Name:	Check-in as company
Brief Description:	This use case describes that the user wants to add the guest details when he/she just check-in the E-registration.
Actors:	Guest
Pre-conditions:	User already select the attendee type.
Main Flows:	**1.** User enters Title. **2.** User enters First Name. **3.** User enters Surname. **4.** User enters Email Address. **5.** User enters Job Title. **6.** User enters Company name. **7.** User click submit text details button. **8.** System verifies the entered text details. **9.** System verified the details. **10.** System displays the success message to user.

	11. Users successfully entered text details.
Post-conditions:	User successfully check-in as company.
Alternative conditions:	System does not verify the details as the user missed some details. **1a.** User enters Title. **2a.** User enters First name. **3a.** User enters Surname. **4a.** User enters Email Address. **5a.** User enters Job Title. **6a.** User enters Company name. **7a.** User click submit text details button.

3.3 Check-in as public guest

Use Case ID:	UC_03
Use Case Name:	Check-in as public guest
Brief Description:	This use case describes that the user wants to add the guest details when he/she just check-in the E-registration.
Actors:	Guest
Pre-conditions:	User already select the attendee type.
Main Flows:	**1.** User enters Title. **2.** User enters First Name. **3.** User enters Surname. **4.** User enters Email Address. **5.** User click submit text details button. **6.** System verifies the entered text details. **7.** System verified the details. **8.** System displays the success message to user. **9.** Users successfully entered text details.
Post-conditions:	User successfully check-in as public guest
Alternative conditions:	System does not verify the details as the user missed some details. **1a.** User enters Title. **2a.** User enters First name. **3a.** User enters Surname. **4a.** User enters Email Address. **5a.** User click submit text details button.

3.4 Generate Badge Name

Use Case ID:	UC_04
Use Case Name:	Generate Badge Name
Brief Description:	This use case describes that how the user generates and preview the badge after submitting the event form successfully.
Actors:	Guest
Pre-conditions:	User already submit the event registration form.
Main Flows:	1. User clicks “Generate badge” option. 2. System generates the badge name. 3. User clicks preview badge option. 4. System displays the preview of the badge. 5. User successfully generate the badge and preview the badge.
Post-conditions:	User successfully generate the badge and preview the badge.
Alternative conditions:	No alternative condition

3.5 Print Badge

Use Case ID:	UC_05
Use Case Name:	Print Badge
Brief Description:	This use case describes that the user prints the generated batch with the name, job title and the company name and attendee type.
Actors:	Guest
Pre-conditions:	User already generated and previewed the badge.

Main Flows:	• User clicks “Print Badge” option.
	• System prints the badge with the following details.
	  • Badge Name
	  • Job Title
	  • Company
	  • Attendee Type
	• User successfully prints the badge.

Post-conditions:	User successfully prints the badge.
Alternative conditions:	No alternative condition

3.6 Scan business card

Use Case ID:	UC_06
Use Case Name:	Scan business card
Brief Description:	This use case describes that the user scans the image of the business card using this system if the user belongs to the same company.
Actors:	Guest
Pre-conditions:	User successfully scan business card.
Main Flows:	• User clicks the scan Business card option. • System displays the user to scan business card. • User scan's the business card. • System stores the image of the business card. • System allows the user to save the business card. • User selects the save option. • User successfully save the business card.
Post-conditions:	User successfully scan and save the business card.
Alternative conditions:	User clicks the capture image option. **2a.** System allows the user to capture the image. **3a.** User captures the image. **4a**. System stores the details of the user using the business card image.

Continue onto the next page for use Case Specification

3.7 Admin Login

Use Case ID:	UC_7
Use Case Name:	Admin Login
Brief Description:	This use case describes that the user login to the system by entering the valid login details.
Actors:	Admin
Pre-conditions:	User's device already connected to the network.
Main Flows:	• User clicks "Login" option. • System requires to enter login credentials. • User enters login credentials. • System verifies the login and allow the user login access. • User successfully login to the system.
Post-conditions:	User successfully login to the system.
Alternative conditions:	System does not allow the user to login as the entered login credentials are invalid. **3a.** User re-enters login credentials.

Continue onto the next page for use Case Specification

3.8 View event analytic

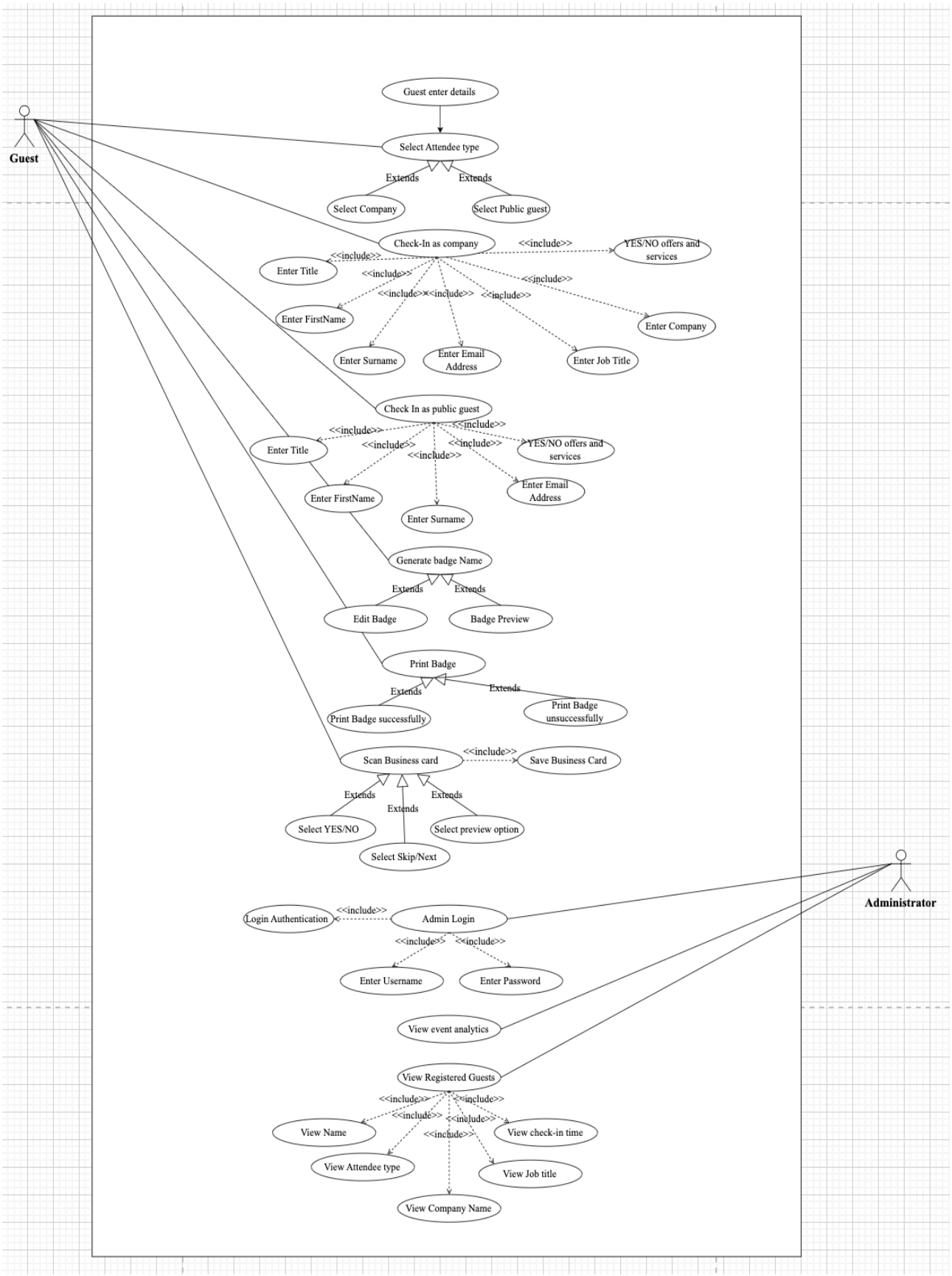
Use Case ID:	UC_8
Use Case Name:	View event analytic
Brief Description:	This use case describes that the user views the event analytics using this system.
Actors:	Admin
Pre-conditions:	User already logged into the system.
Main Flows:	• User clicks event analytic option. • System displays the event analytics. • User successfully view the event analytics.
Post-conditions:	User successfully views the event analytics.
Alternative conditions:	System does not display the event analytics as the event did not conduct yet.

3.9 View registered guests.

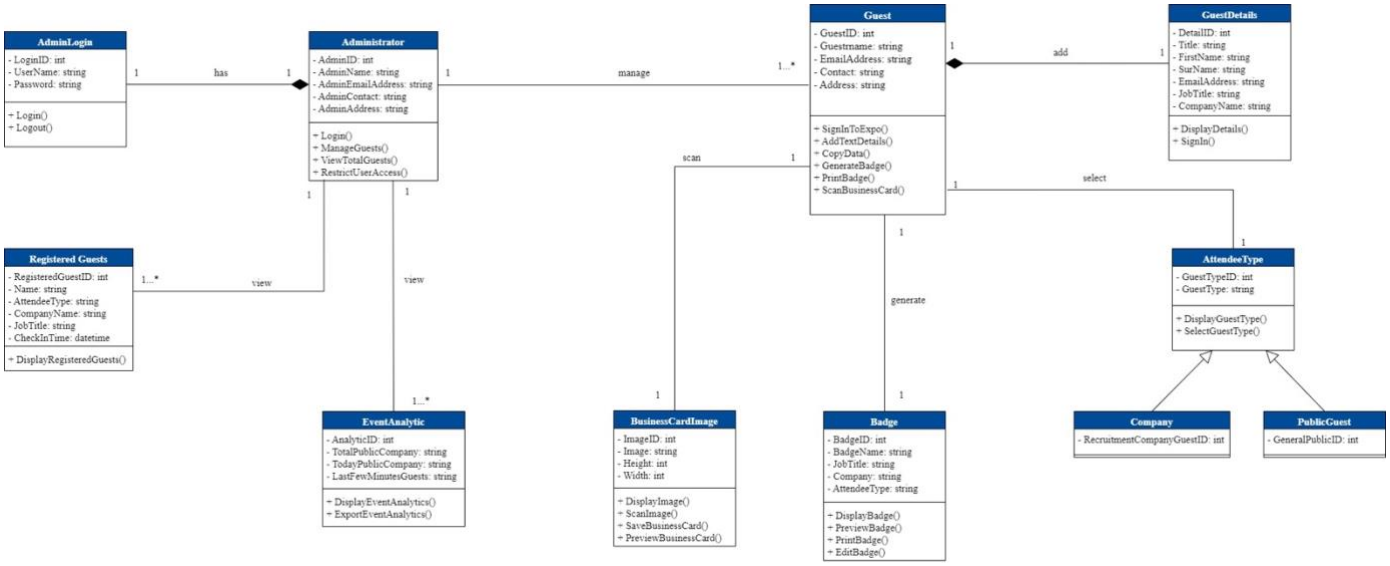
Use Case ID:	UC_9
Use Case Name:	View registered guests.
Brief Description:	This use case describes that the user views the registered guests.
Actors:	Admin
Pre-conditions:	User already logged into the system.
Main Flows:	**1.** User clicks registered guest's option. **2.** System displays the registered guests. **3.** User successfully views the registered guests with the check-in time.
Post-conditions:	User successfully views the registered guests.
Alternative conditions:	No alternative conditions

Continue onto the next page for use Case Model Diagram

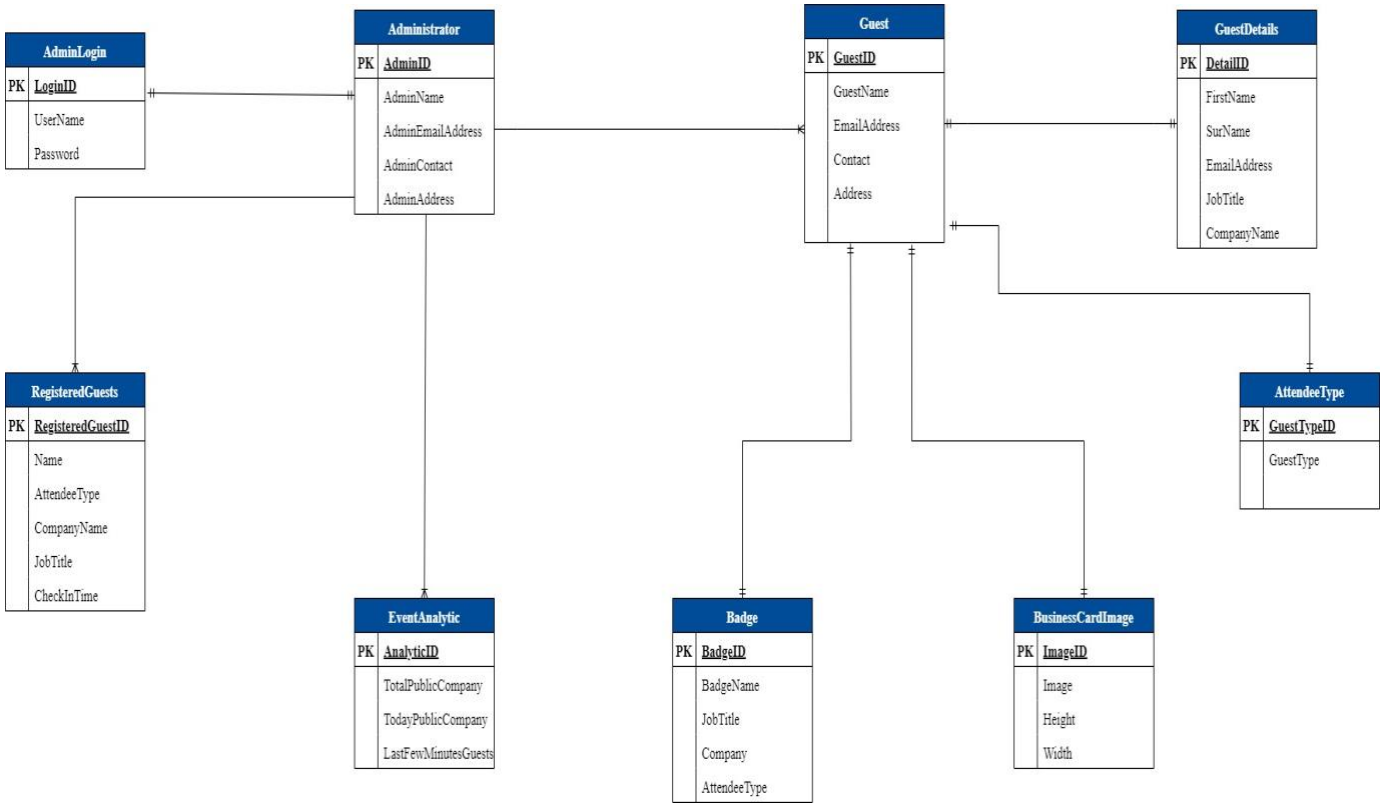
3.10 Use Case model Diagram



3.11 Class diagram



3.12 Entity Relationship diagrams



3.14 Data Dictionary

The event registration system application will have a Data Model and Dictionary that will provide a reference point for the improvement of information standards the event registration activities to access this system application for Teesside university. This has been developed for the clients' system requirements that will have the active involvement of administrators and guests within the system. The event registration data Dictionary is maintained and published by Teesside University.

There is variety of way of creating a data source for the system application I have considered the following data sources:

- **Excel Spreadsheet**
- **SharePoint**
- **SQL Server (Structured Query language)**

These data source option described above for the use for PowerApps, can depend on the specific needs for the application. Here are the differences between the use of these data sources below:

Excel: Excel is a popular spreadsheet program that many users are already familiar with. It can be a good option for small to medium-sized data sets that don't require advanced database features, and it can be an easy way to get started with PowerApps development. However, Excel is not ideal for large data sets, and it may not be suitable for applications with complex data relationships.

SharePoint: SharePoint is a web-based collaboration platform that can be used to store and share files and data. It can be a good option for teams that need to collaborate on data and documents, and it offers some advanced features for managing data such as versioning and access controls. However, SharePoint may not be as performant as other database options, and it may not be suitable for applications with complex data relationships.

SQL Server: SQL Server is a powerful relational database management system that can handle large volumes of data and provide advanced features for managing and querying data. This can be good for complex application for creating relationship for data retrieval or join tables.

I have attached below the Advantages and disadvantages of using these data sources for the event registration application within PowerApps.

Data Source Type	Advantages	Disadvantages
Excel Spreadsheet	• Work efficiently with allied with the use of Microsoft power apps. • Accessible to backup data by copying spreadsheets. • Users with a literacy of Excel can scope excel much easier.	• Excel is limited to 1M rows of data. • Excel can be corrupted or lost when they can be multiple copies of the same file. • This can be difficult to handle very large datasets within the database source. • The filtering and searching for the data are very limiting. • Excel cannot handle media content such as images or business card on a visual representation.
SharePoint	• SharePoint has a similar interface for the database table within the columns with data types. • There is no prerequisite are required for new schema. • The User interface is very diverse for the office 365 platform, when using PowerApps. • The coordination of the SharePoint apps with data stored in places. • The migration of data is not required to be sync.	• SharePoint does support any complex data relationship within creating databases. • SharePoint cannot handle many types of datasets within the items. • Lack of external access if required to share the data source. • The security of SharePoint has a lot of vulnerability for examples; user should not be able to see all the data records in the data source.

SQL server	• SQL Server is an industry standard used within the IT space for restoring or backing up data. • The database engine offers a features for; relationships, data validation, auto-incrementing fields. • The SQL server can be optimised to join tables and data retrieval within the database. • There is no licence needed for SQL server on an onsite location. • SQL server can run a system on multiple database instances.	• SQL server is used in the commercial sector of a database system, the license and operation for small to medium size business or freelancers can be expensive. • The setting up for SQL server does require technical knowledge to get the database to setup. • The PowerApps can connect with variety of database sources, however when connecting within SQL server it can have additional development to make sure it connects and work correctly to the application. • The SQL server does require for following the best practise for security principle. If this is taken into consideration it can lead in data breaches and cyber-attacks to the database.

Figure 1: Advantages and disadvantages of using variety of data sources within the PowerApps application.

Continue onto the next page for the SQL server data Dictionary.

3.14 SQL Server Data Dictionary

After completing the research on the data dictionary and reflect on the client requirements. I have taken the executive decision to complete my data dictionary within Microsoft SQL server because it provides great support for this application as well as it can perform quickly on an onsite server location.

Table Name: expotees.AttendeeType

Column Name	Data Type	Primary Key	Foreign Key	Description
AttendeeTypeID	int	Yes	No	Unique identifier of the attendee type
AttendeeTypeName	varchar(50)	No	No	Name of the attendee type

Table 1: ExpoTees.Attendee Type

Table Name: expotees.Administrator

Column Name	Data Type	Primary Key	Foreign Key	Description
AdminID	int	Yes	No	Unique identifier of the administrator
UserName	varchar(50)	No	No	Username of the administrator
Password	varchar(50)	No	No	Password of the administrator
AdminName	varchar(50)	No	No	Name of the administrator
AdminEmailAddress	varchar(50)	No	No	Email address of the administrator
AdminContact	varchar(50)	No	No	Contact number of the administrator
AdminAddress	varchar(250)	No	No	Address of the administrator
Created	date	No	No	Date is created when the administrator was created
modified	date	No	No	Date when the administrator was last modified
isActive	bit	No	No	Indicates whether the administrator is active or not
Isablelogin	bit	No	No	Indicates whether the administrator can login or not

Table 2: Expotees.Administrator

[i]**Continue onto the next page for the SQL server data Dictionary.**

Table Name: expotees.EventAnalytic

Column Name	Data Type	Primary Key	Foreign Key	Description
AnalyticID	int	Yes	No	Unique identifier of the event analytics
TotalPublicCompany	varchar(50)	No	No	Total number of public companies attending the event
LastFewMinutesGuests	varchar(50)	No	No	Last few minutes guests count of the event
AdminID	int	No	Yes	Foreign key references to the Administrator table's AdminID column

Table 3: Expotees.EventAnalytic

Table Name: expotees.RegisteredGuests

Column Name	Data Type	Primary Key	Foreign Key	Description
RegisteredGuestID	int	Yes	No	Unique identifier of the registered guest
Name	varchar(50)	No	No	Name of the registered guest
AttendeeTypeID	int	No	Yes	Foreign key references to the AttendeeType table's AttendeeTypeID column
CompanyName	varchar(50)	No	No	Name of the company of the registered guest
JobTitle	varchar(50)	No	No	Job title of the registered guest
CheckInTime	date	No	No	Check-in time of the registered guest
isregister	bit	No	No	Indicates whether the registered guest is registered or not
AdminID	int	No	Yes	Foreign key references to the Administrator table's AdminID column
Created	date	No	No	Date when the registered guest was created
modified	date	No	No	Date when the registered guest was last modified

Table 4: Expotees.RegisteredGuests

Continue onto the next page for the SQL server data Dictionary.

Table Name: expotees.Guests

Column Name	Data Type	Primary Key	Foreign Key	Description
GuestID	int	Yes	No	Primary key of the table, unique identifier of the guest
title	varchar(50)	No	No	Title of the guest
FirstName	varchar(50)	No	No	First name of the guest
SurName	varchar(50)	No	No	Last name of the guest
Email	varchar(50)	No	No	Email address of the guest
contat	varchar(50)	No	No	Contact number of the guest
Address	varchar(50)	No	No	Address of the guest
AttendeeTypeID	int	No	Yes	Foreign key references to the AttendeeType table's AttendeeTypeID column
CompanyName	varchar(50)	No	No	Name of the company of the guest
JobTitle	varchar(50)	No	No	Job title of the guest
AdminID	int	No	Yes	Foreign key references to the Administrator table's AdminID column
Checkintime	varchar(50)	No	No	Check-in time of the guest

Table 5: Expotees. Guests

Table Name: expotees.Badge

Column Name	Data Type	Primary Key	Foreign Key	Description
BadgeID	int	Yes	No	Primary key of the table, unique identifier of the badge
BadgeName	varchar(50)	No	No	Name of the badge
JobTitle	varchar(50)	No	No	Job title of the badge
AttendeeTypeID	int	No	Yes	Foreign key references to the AttendeeType table's AttendeeTypeID column

Table 6: Expotees. Badge

Continue onto the next page for the SQL server data Dictionary.

Table Name: expotees.BussinessCardImage

Column Name	Data Type	Primary Key	Foreign Key	Description
BussinessCardImageid	int	Primary Key		Unique identifier of the business card image
BussinessCardName	varchar(50)			Name of the business card image
Height	varchar(50)			Height of the business card image
Width	varchar(50)			Width of the business card image
Location	varchar(50)			Location of the business card image
Created	date			Date when the business card image was created
modified	date			Date when the business card image was last modified
GuestID	int		expotees.Guests(GuestID)	Foreign key references to the Guest table's GuestID column

Table 7: Expotees. BussinessCardImage

This is the end of the SQL Server data dictionary.

4. Wireframes

Theses wireframe which has been prepared by Developer and design to provide a schematic of the visual appearance of the application as well as the developer and designer and project manager to communicate what the outcome of the system application will look like. To create these wireframes which will be present below I have used the following applications:

- Adobe XD
- Adobe Photoshop
- Adobe Illustrator
- Draw.io

I have used these design packages in the past to help generate ideas and create bring the wireframe to live to give a really first impression of the application I will be built for Teesside University.

To generate these wireframes, I have used the same device that the client as requested which the application will be hosted through an iPad.
The client has specified specification of which will iPad however after conducting research on iOS operating system on iPad the aspect ratio remains the same throughout.

The use of wireframing the event application system is to highlight the following:

- The key elements within each screen of the application and to enable hierarchy of layouts on the variety of screens within this event registration application for an iOS user interface.

- The cross communication within the roles within the scope of this project of application. The client will see the design process if its meets' the system requirements within this scope of this project.

- I will be receiving early on feedback from client to give a view of the product to the client. This wireframe will be providing the developer a good insight of the structure. As a developer I will use it to generate good quality code.

- The cost-effectiveness of wireframing can be simplistic using design packages to build concept designs, which can be amended with a few clicks. This will a good investment to wireframe to position of all the key functionalities on the screen are correct rather correct mistakes within the build phase of the project.

These wireframes are not the final version of design, this will be my foundation for the end-users of the system application. This will incorporate variety of detailed functions within the events registration application, I will provide a final protype style guide to show the full application on an iPad.

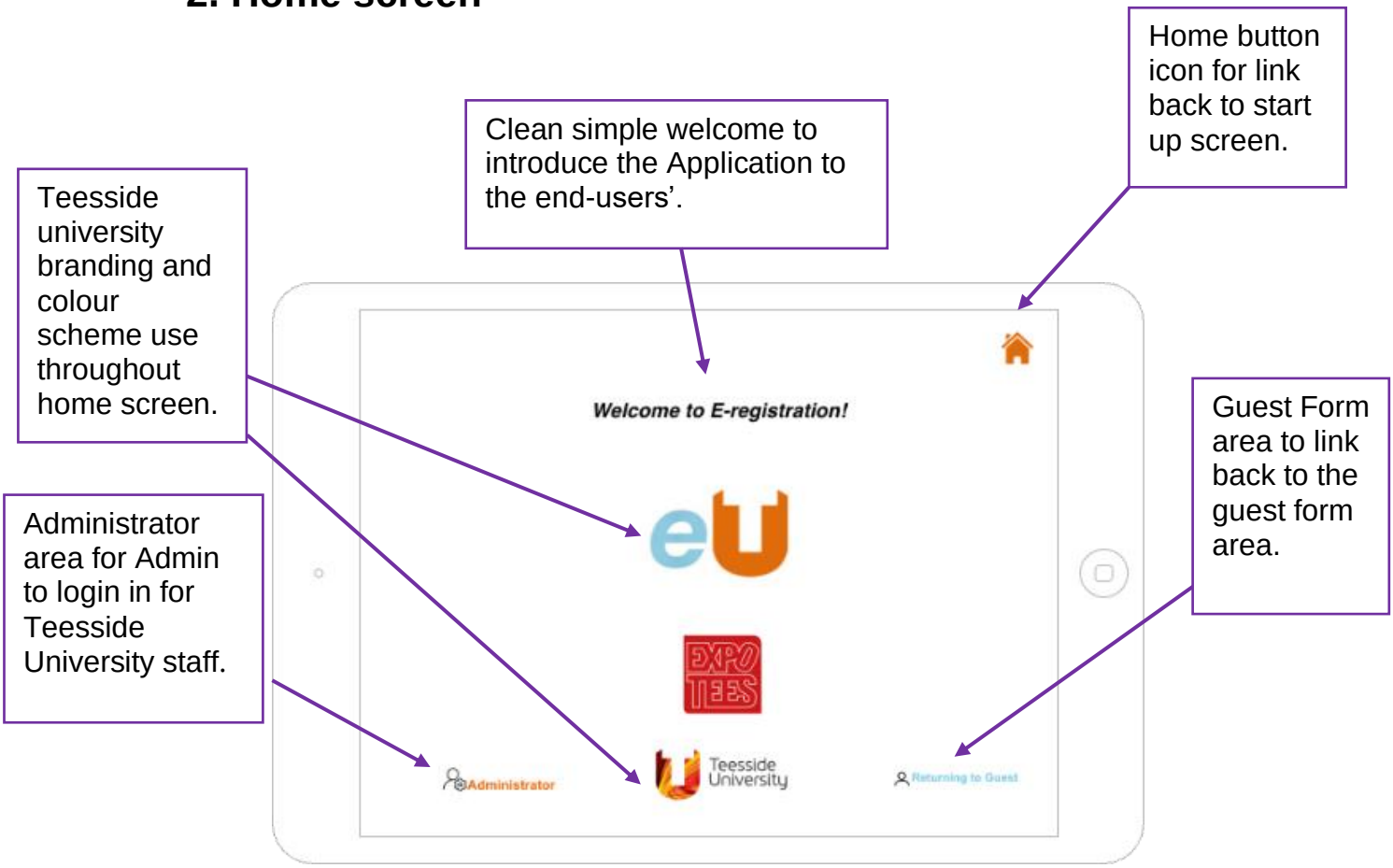
1. Start-up screen

Simple but effective branding from the client request. Using colours that end-users' can recognise with the Brand.

Simple logos to express the clean interface for a first launching the app on an iOS application. This related back to the requirements of design abide by the client request for a clean interface with incorporating the colours of the Teesside University. This Startup screen is sized correctly to suit the iPad format as the client request for the application. The Startup screen will be a real quick bootable screen that will not be an intensive load up screen for the iPad screen.

Please continue onto the next page for wireframe section.

2. Home screen

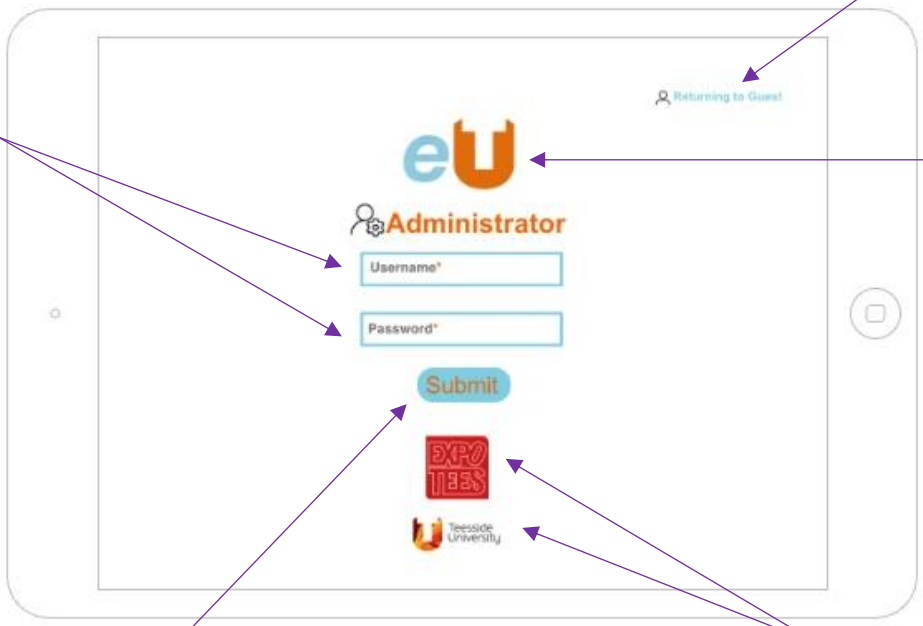


Please continue onto the next page for wireframe section.

3. power Administrator Login Screen

Returning to guest form.

Username and Password field entry for security purpose for accessing the data of the event.



A submit button once the administrator has entered the details for the login in screen.

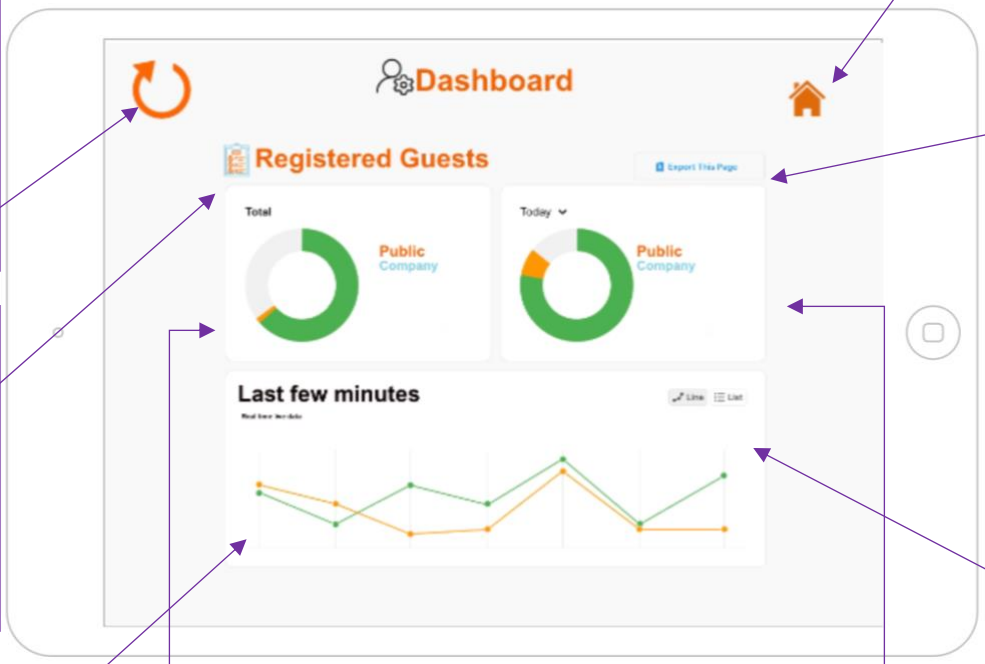
The use of brand continuity throughout the application on the administrator login screen. This is completed by Teesside university logos as well as the brand colours of the application.

Please continue onto the next page for wireframe section.

4. Administrator Main Dashboard Screen

Home icon to go back to the main home screen.

Manual refresh page button as a manual override switch to reduce the amount of latency.



Export Data button to a excel file.

Has registered guest button to show all guest details of when which has checked in to the expo-tees event.

Simple graph to show the progression of event check-ins from the types of guests.

The dashboard will track live data of the event by showing it from the today amount of guest as well as the last few minutes, it will show the main guest types which will be showing company and public within that category will be family and friends.

Filter options on the line graphic. It can be filter by line or bar graph.

Please continue onto the next page for wireframe section.

5. Registered guest list screen

Refresh button to manual refresh the page if there is a delay with SQL server database.

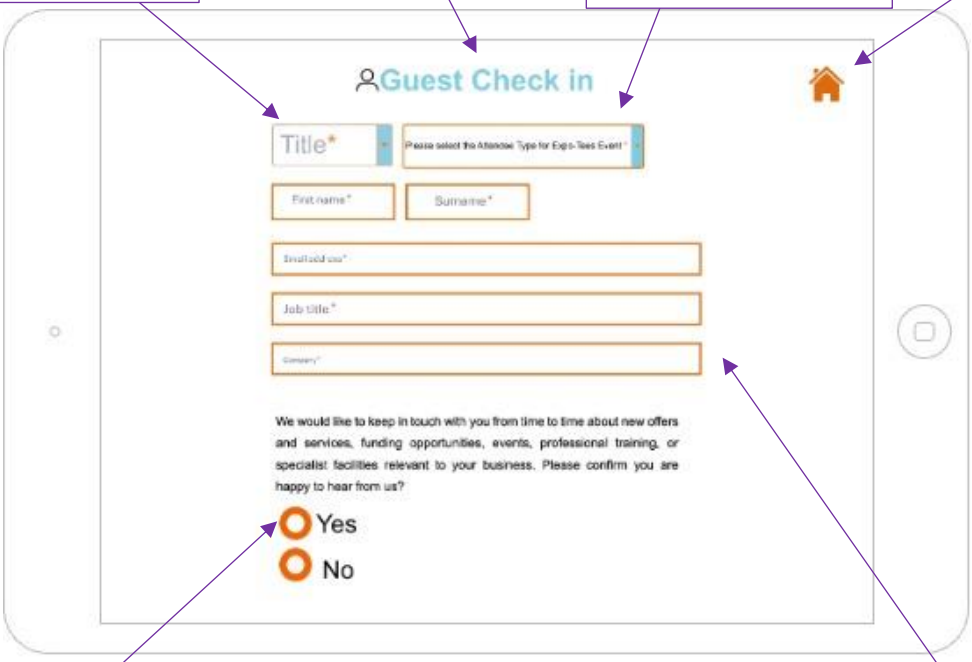
Home icon for link to home page.

This table will be showing the guests that have checked in within the E.U-registration application. This will include the end-users' details (Name, Attendee type, company name (if applicable to guest that attend with their company) as well as the job title (if applicable to guest that attend with their company) and check in time.

A back button to link back to the previous screen which is the main analytics dashboard.

Please continue onto the next page for wireframe section.

6. Check in guest form for a company's screen



A menu field drop down for Title* field.

A heading title with an icon.

A menu field drop down for type of attendee this can be the company screen type.

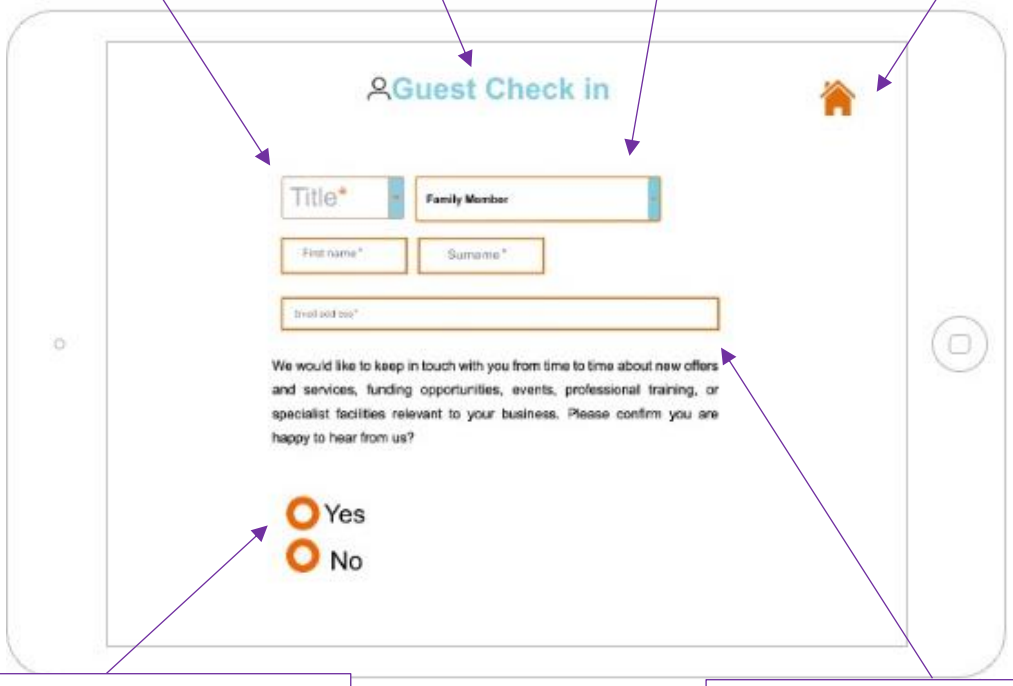
Home icon for link to home page.

Radio buttons used for a Yes and no answer. This will be triggered by the privacy policy, and it be marked against each person name for privacy policy, if they would like to be contact by Teesside university.

A form style section that can be typed with the use of the tablet screen in mind. This is within multiple field types such as First Name, Surname, Email, job title, company. This must be completed by the end-users of the company attendee type it cannot be skip or disabled by the guests.

Please continue onto the next page for wireframe section.

7. Check in Guest form the Public (Family or friends) screen.

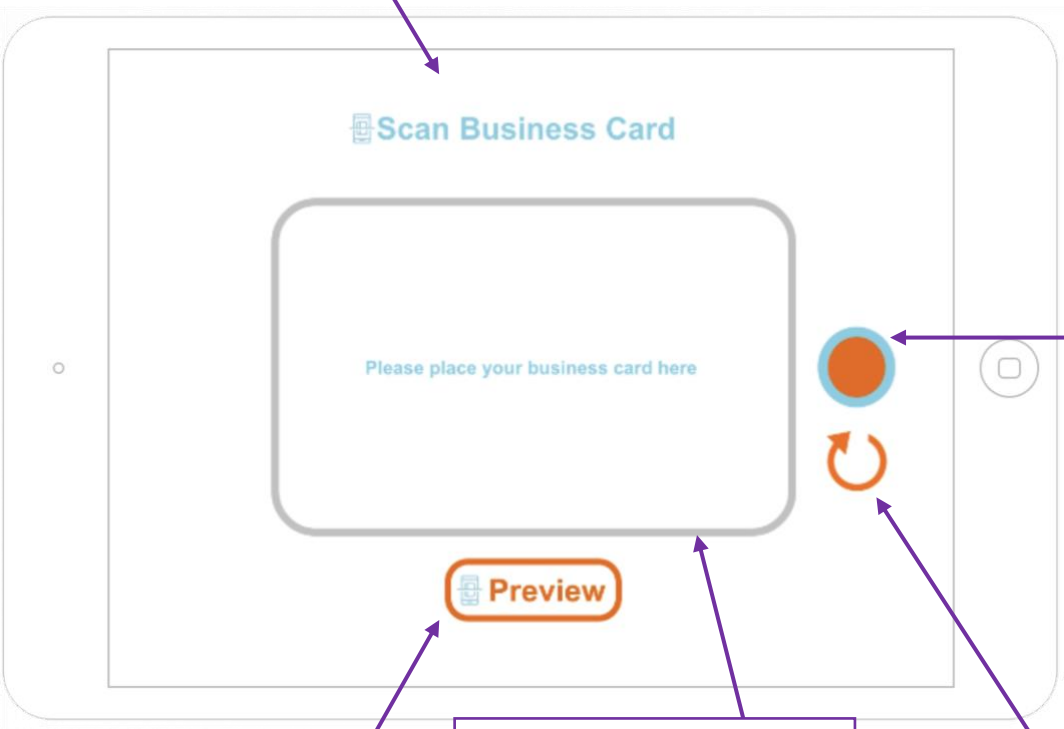


Please continue onto the next page for wireframe section.

8. Scanning business Card Option screen

Please continue onto the next page for wireframe section.

8.1 Scan business card screen



A heading title with an icon.

Capture button for the guest to capture the scan the business card within the system. I have used the same colour scheme to remain the brand continuity throughout the system application.

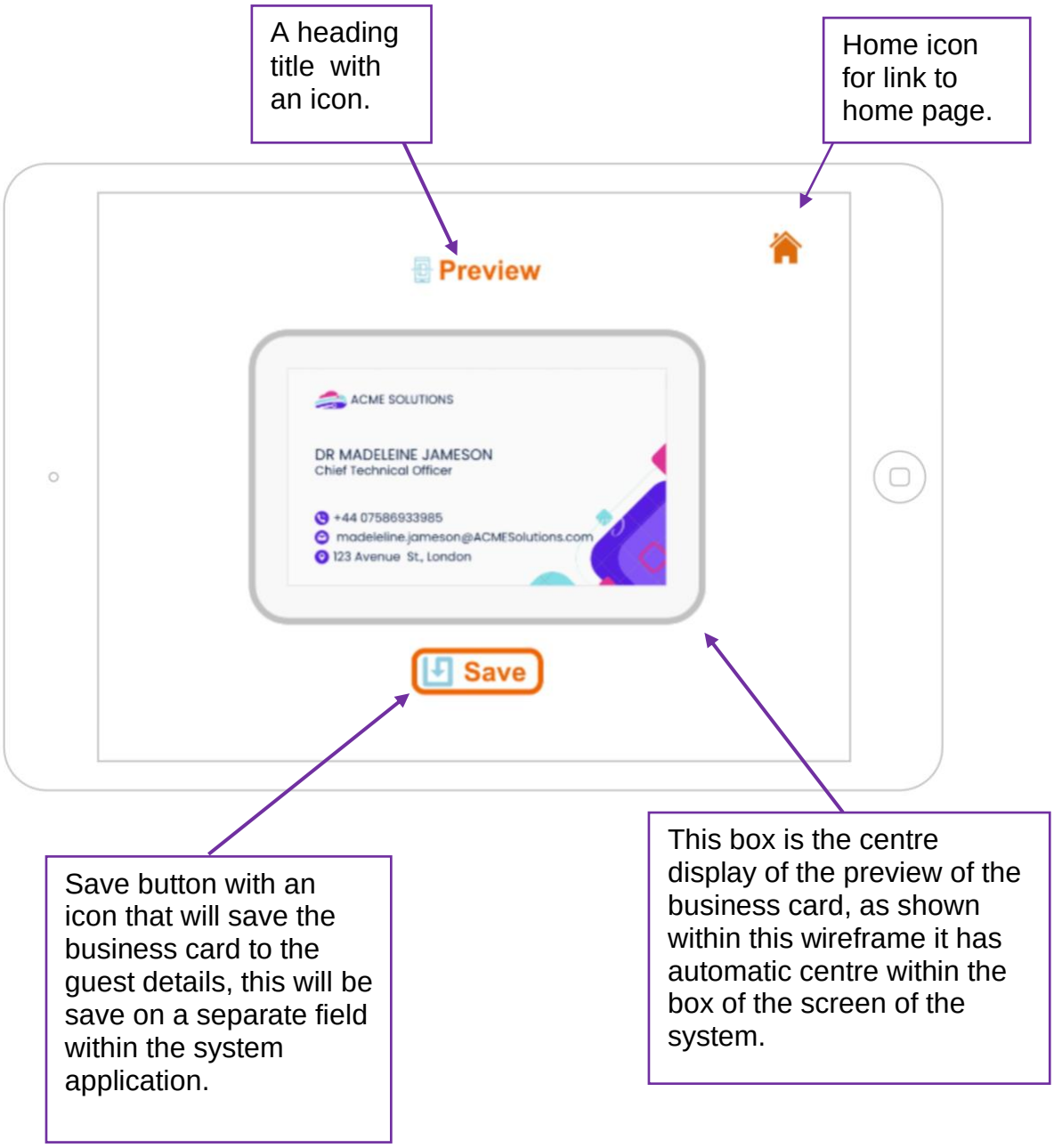
The preview button will take the guest to check the business card that is scan in looks clear and not blurry.

The business card will need to be centre align with the box on the camera screen. However, this can be done within the PowerApps application to detect a business card.

A restart icon for re-scanning the business card within the system application.

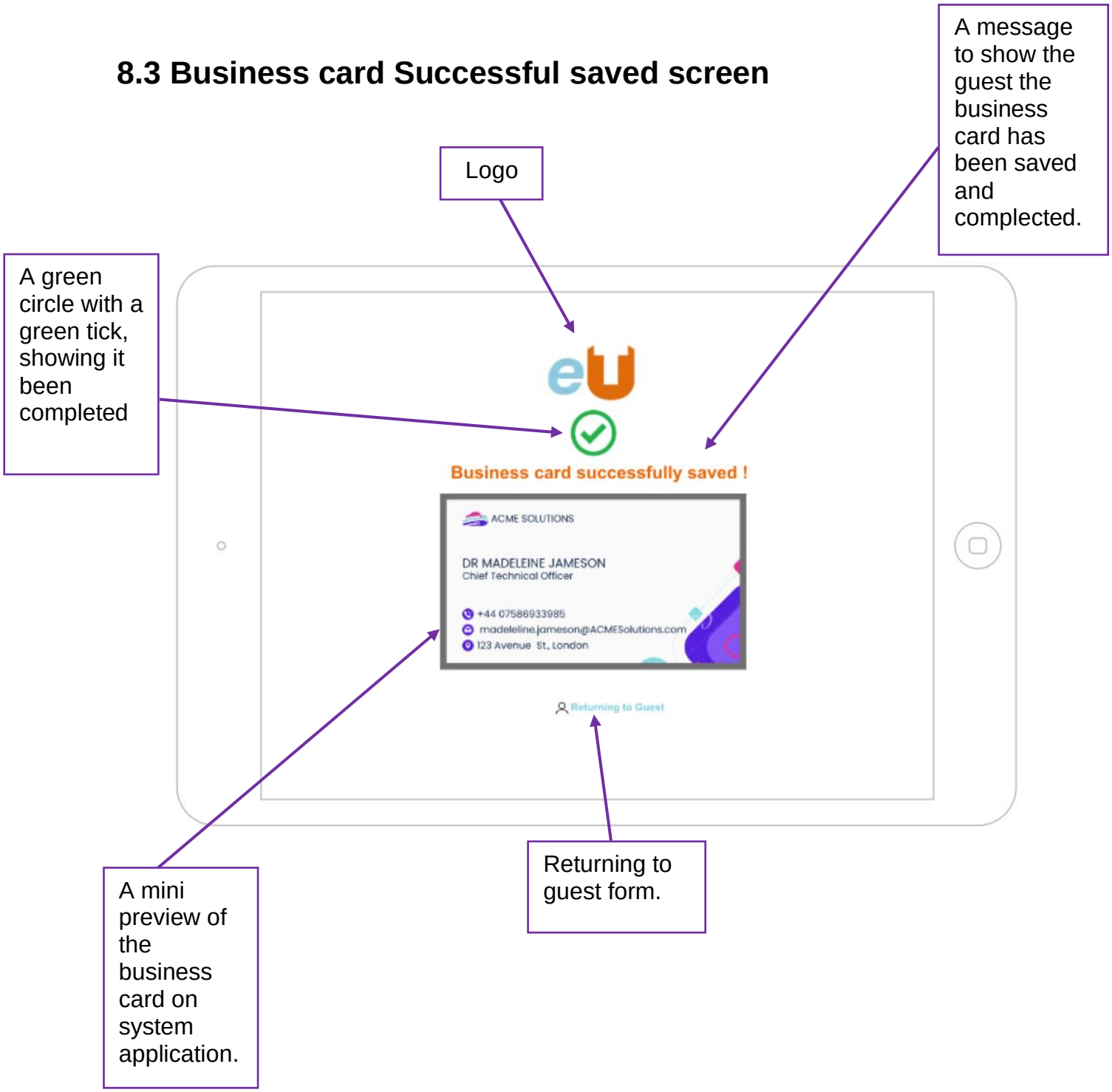
Please continue onto the next page for wireframe section.

8.2 Preview screen



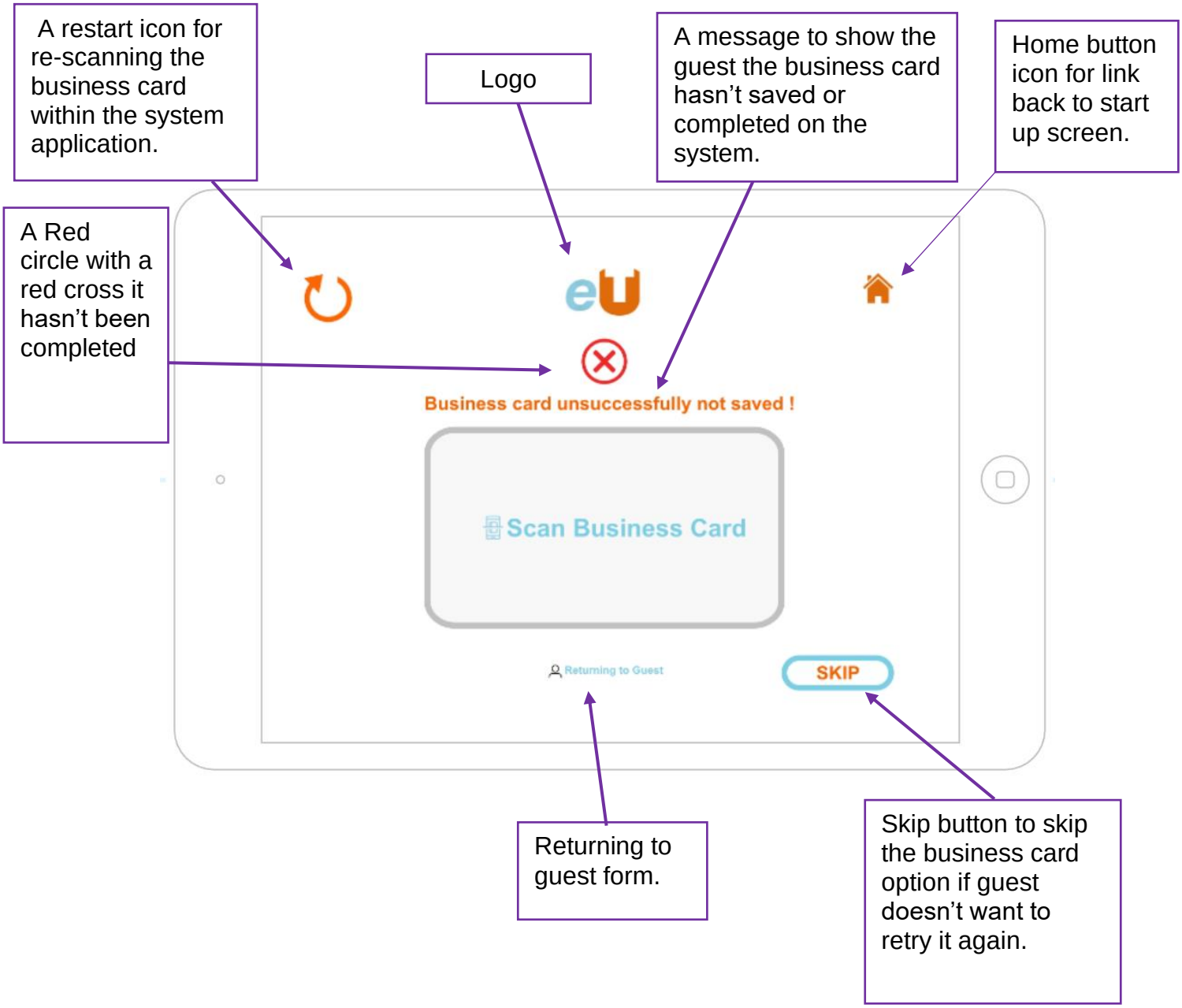
Please continue onto the next page for wireframe section.

8.3 Business card Successful saved screen



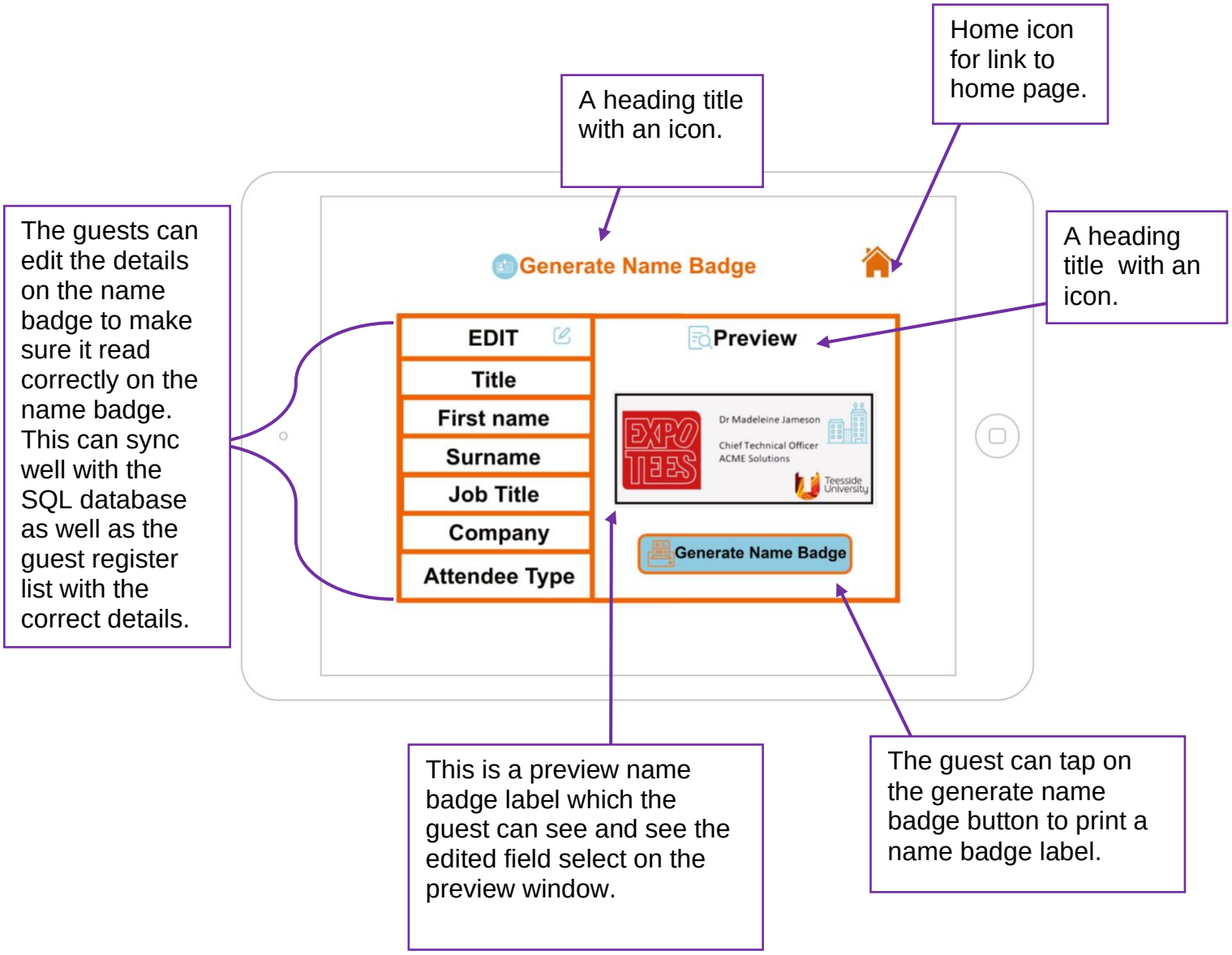
Please continue onto the next page for wireframe section.

8.4 Business card unsuccessfully not saved screen.



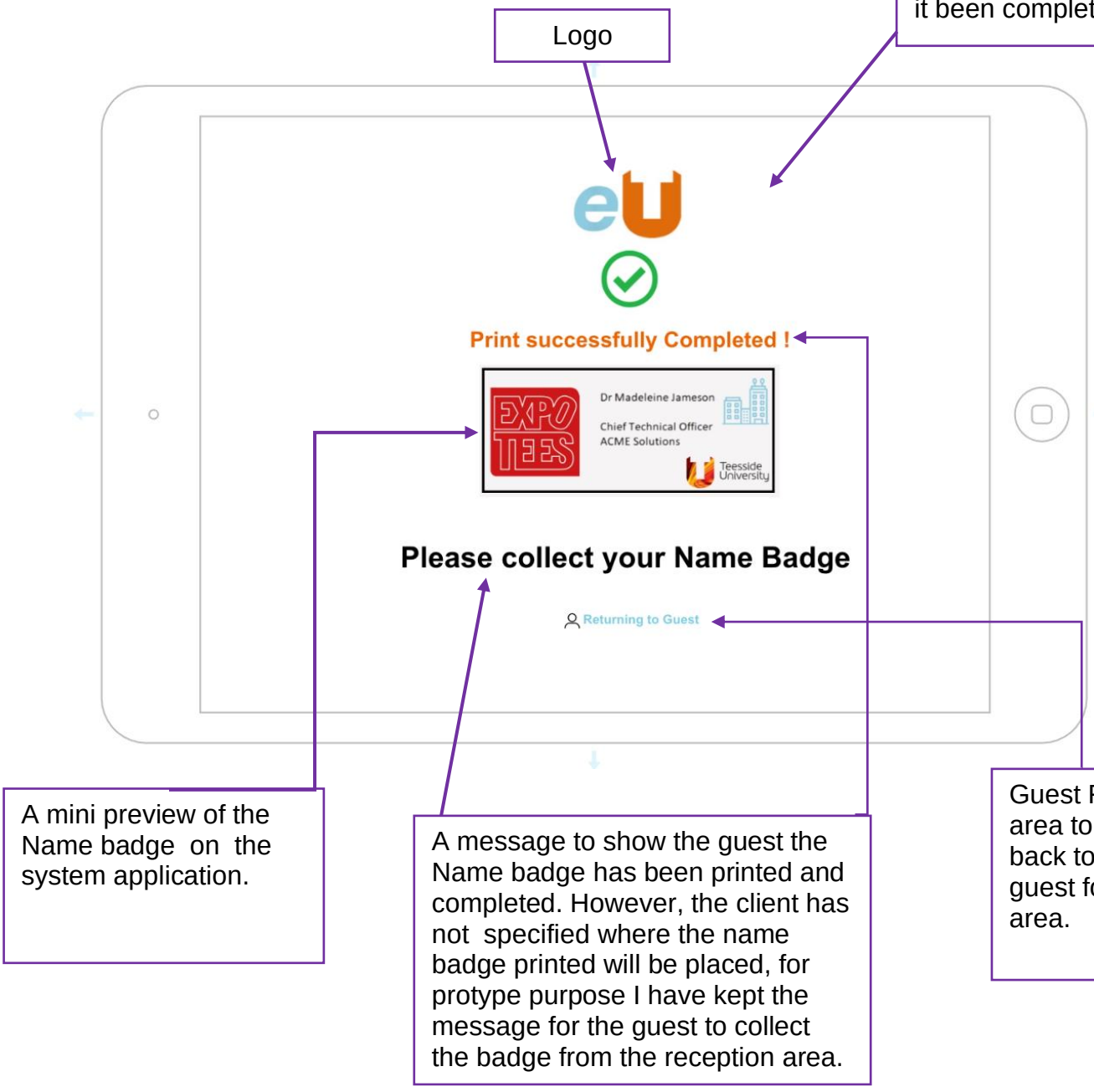
Please continue onto the next page for wireframe section.

9. Generate a Name badge



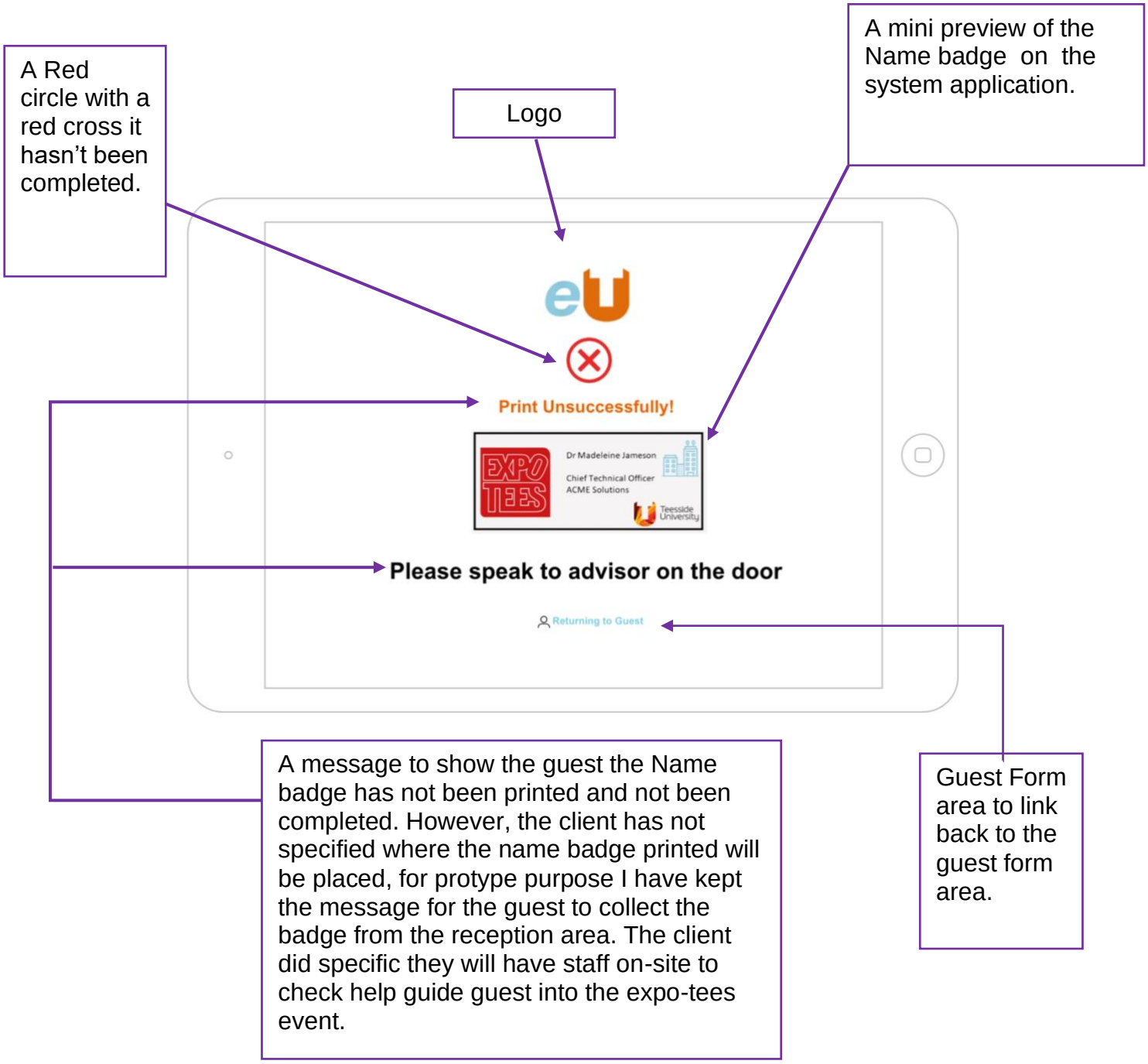
Please continue onto the next page for wireframe section.

9.1 Successful name badge print



Please continue onto the next page for wireframe section.

9.2 Unsuccessful name badge print Screen



This is the end of Wireframes Section

5. Style Guide of the EU-registration system

The style guide will portray the clients' initial design requirements specific within the requirement from the client that will reflect on the event registration system application. The style guide will have a memorable interactive experience with the guests' using this application.

Throughout the process of this style guide major design decision have been take into consideration to not affect the system requirements as well as the usability for the guests.

The key concepts of a clean user experience that represent the expo-tees event as well as the client brand will keep an inclusive aesthetical experience to the guests and administrator using the system application.

To evaluate the design decision in-depth, I did have feedback from the client on accessibility of the system application from a design element of this style guide has been analysed for this protype. However, I will keep compliance to the accessibility's legislation (Accessibility department, 2018).

I will be considering the following factors relating to design requirements when generating a style guide:

- Have a simplistic menu that can be configured with the correct parameters of the iPad in a landscape view.

- A simple and effective branding of Teesside University that correlates with Expo-Tees events.

- The use of accessibility features inbuild with the system to target various of hidden disabilities guests' that attend the expo-tees.

5.1 Logos

The logo's used within this Event registration system application was provided by the client. The logos' have been correctly sized to the correct format of the application for a tablet application. The logo will represent the brand of Teesside University as well as the Expo-Tees event.

The Logo elements within the system application will be format to a PNG (Portable Network Graphic). This is due to the quality and compression of the logo that will be same compressed format to contribute to the other elements of main visuals of the application within the Event Registration.

Unfortunately, due to the restrictiveness of the Microsoft PowerApps application it will be difficult to comment due to the restrictiveness of the application as it is refining development application to with a no – code solution or using Ai capability for maybe future endeavour with this application I am currently building.

The implantation of the logos I will be using within the registration application I will be using on this system application.

1. **Teesside University**

2. **Expo-Tees**

Continue onto the next page for the logo's section.

3. The system application logo of the event registration application

This logo element was design by me to have a unique User Interface to the client, I have used the elements from the client brand within the application. This is an additional request from the client, not within the scope of this application. Furthermore, to expand on I have used the recommendations from the client, to design a unique logo to be distinctive for the application.

Continue onto the next page for the graphical icons

5.2 Graphical icons

The graphical elements of the system application of the event registration system will have an impact on the prototype application. The incorporation of the graphics will have a unique and diverse colour palette within each graphical element to maintain brand awareness across the application for all user types.

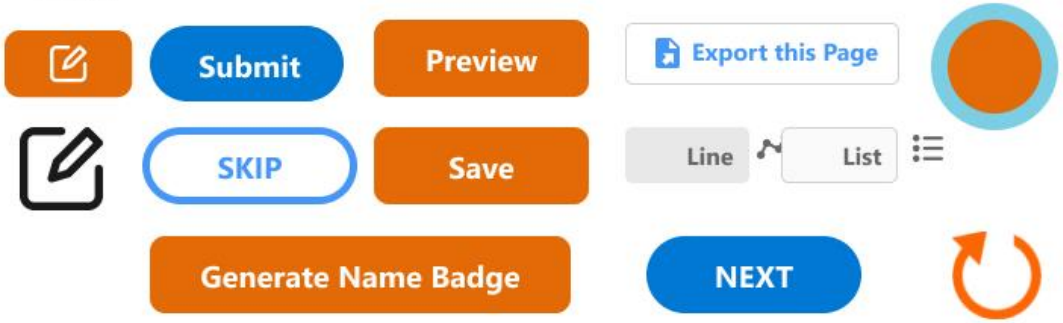
The graphical elements will be created using the Figma and Microsoft PowerApps User interface (U.I) kit.

I will be crediting the use of the graphical elements with the event registration system application. The client has not provided any of the graphical element, however, they have reviewed these elements and agreed on the final prototype of the event registration application.

Here are the overall Graphical elements used within the system application:

Title Icons

Buttons

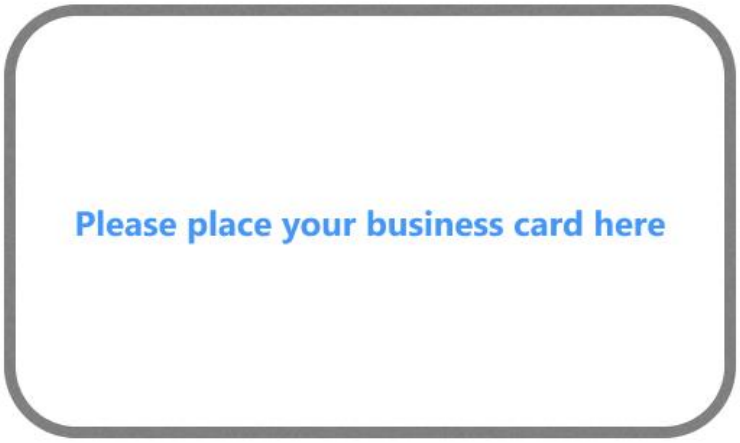


Graphical Icons

Preview box

5.3.

Capture box



Typography

Typography of the E.U event registration system application this will have a massive impact on the user experience from all types of users within the application. (Atiker, 2021) emphasis typography is an important for the users'

interaction across the platform of a tablet application. Additionally, this will have an impact with the navigation of the system application from both types of users' guests and administrators.

The typography will meet the adequate criteria for the end users' and client requirements.

The use of serif font families will have a positive impact on accessibility for all end users' using this application, this was expressed by the client to have an inclusion with the application for all end users. (Minakata et al., 2023) states that using the serif font family it can be more adaptable for the user to read the text with variation of sizes when design the system application.

The typography will meet a criteria for the event system application:

- **Typography will be suitable for the main body text, titles, subheadings.**
- **There will be sufficient lines spacing between typography within the main body text.**
- **Line spacing will be appropriate for the tablet application within PowerApps.**

Continue onto next page to see all Typography Style Guide

Header 1

Font Segoe UI	Letter Spacing 0%
Weight Bold	Text Decoration None
Size 40px	Paragraph Spacing 0px
Line Height Automatic	Case Original

The quick brown fox jumps over the lazy dog.

Header 2

Font Segoe UI	Letter Spacing 0%
Weight Bold	Text Decoration None
Size 32px	Paragraph Spacing 0px
Line Height Automatic	Case Original

The quick brown fox jumps over the lazy dog.

Regular 28

Font Segoe UI	Letter Spacing 0%
Weight Regular	Text Decoration None
Size 28px	Paragraph Spacing 0px
Line Height Automatic	Case Original

The quick brown fox jumps over the lazy dog.

Semibold 20

Font Segoe UI	Letter Spacing 0%
Weight Semibold	Text Decoration None
Size 20px	Paragraph Spacing 0px
Line Height Automatic	Case Original

The quick brown fox jumps over the lazy dog.

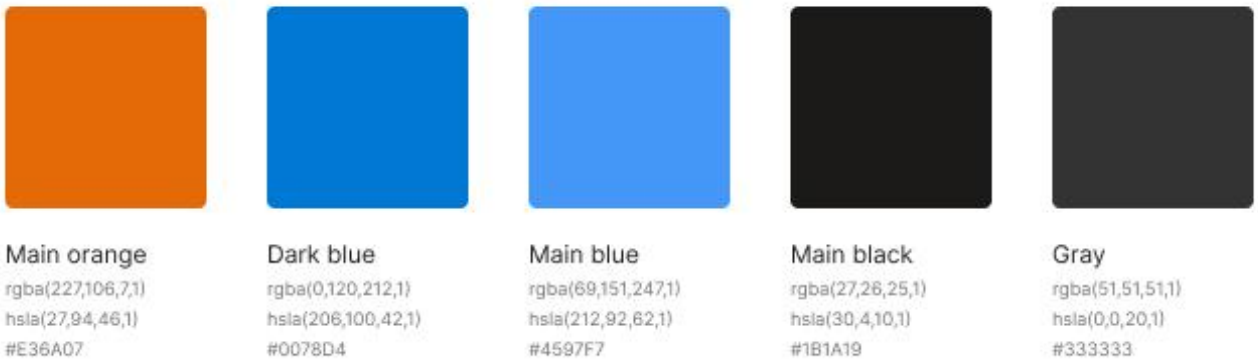
Semibold 16

Font Segoe UI	Letter Spacing 0%
Weight Semibold	Text Decoration None
Size 16px	Paragraph Spacing 0px
Line Height Automatic	Case Original

The quick brown fox jumps over the lazy dog.

5.4 Colour palette

The colour palette of the event registration application will consist of the five main colours within the system application. This is adapted from the client specification from the requirements list. The five main colours used within this application will have a significant impact on the client branding of the event as well as the accessibility for the different types of users' interacting with the application.



The colour palette will meet a criteria for the event system application:

- Colours are not overpowering for the client and guests using the system application.
- The colours will effectively introduce the client branding of the event of Expo-Tees.
- The colours will not affect accessibility of the system application.
- The five main colours used will be spread across the application to keep a uniform for the user experience within the application.

6. Test plan for the event registration application

Case ID	EU 01
Case Summary	Entering valid information fields
Pre-Conditions	The format for the information will have a set criteria in the beginning of the checking in form. The First and surname will have a maximum of50 character limit. The email field will allow for a @ symbol that will be used as well as a full stop for varied of different email address ending with a .com , .co.uk or a organisation email address.
Test Procedure	When enter the valid details of Title, Name, Email, company name, Job title in the EU registration screen, the submit button will need to be selected.
Test Data	Name (First & Last Name): • John Smith • Alice Johnson • Robert Lee • Emma Taylor • Samantha Chen Email: • john.smith@example.com • alice.johnson@example.com • robert.lee@example.com • emma.taylor@example.com • samantha.chen@example.com Company Name: • Acme Corporation • XYZ Inc. • Global Industries • Innovative Solutions • Bright Future Co. Job Title: • Marketing Manager • Software Engineer • Sales Executive • Human Resources Coordinator • Operations Analyst
Expected Result	The details entered is accepted and the next stage of the application will be continued.
Actual Result	• The form accepts the valid information and submits the form. • The form redirects the user to the appropriate page, indicating that their check-in has been successful.

Case ID	EU 02
Case Summary	Entering invalid information within the check in form
Pre-Conditions	The check-in form is open. The user has entered their information into the appropriate fields.
Test Procedure	1. Open the registration form. 2. Enter a name that exceeds the 50 character limit. 3. Enter an email address that is less than 3 characters or does not include the "@" symbol or a full stop. 4. Enter a company name that exceeds the 50 character limit. 5. Enter a job title that exceeds the 50 character limit. 6. Fill out any other required fields. 7. Submit the form.
Test Data	Name (First & Last Name): • John Smith • Alice Johnson • Robert Lee • Emma Taylor • Samantha Chen Email: • john.smithexample.com • alice.johnsonexample.com • robert.leeexample.com • emma.taylorexample.com • samantha.chenexample.com Company Name: • Acme Corporation • XYZ Inc. • Global Industries • Innovative Solutions • Bright Future Co. Job Title: • Marketing Manager • Software Engineer • Sales Executive • Human Resources Coordinator • Operations Analyst
Expected Result	• The form should display error messages for each invalid field, indicating that the information entered is invalid. • The form should not allow the user to submit the form until all required fields have valid information.
Actual Result	• The form displays error messages for each invalid field, indicating that the information entered is invalid. • The form prevents the user from submitting the form until all required fields have valid information.

Case ID	EU 03
Case Summary	Saving all information inputted by the users'
Pre-Conditions	• The user has entered their data into the check-in form. • The data has been processed and validated.
Test Procedure	• The user has entered their data into the check-in form. • The data has been processed and validated.
Test Data	After the user submits the check-in form, the data will be saved in the database with the following details: Check-in Date: 2023-04-12 Check-in Time: 09:30 AM Name: John Smith Email: john.smith@example.com Company Name: Acme Corporation Job Title: Marketing Manager Check-in Status: Checked-in
Expected Result	• The system should save the data correctly. • The retrieved data should match the original data entered in the check-in form.
Actual Result	• The system saves the data correctly. • The retrieved data matches the original data entered in the check-in form.

Case ID	EU 04
Case Summary	Processing information quickly through the check-in form and the information that is verify within th check in form that can be processed information quickly.
Pre-Conditions	1. The check-in form is open. 2. The system is running optimally.
Test Procedure	1. Enter valid information within the check-in form as quickly as possible. 2. Submit the form.
Test Data	Check-in Date: 2023-04-12 Check-in Time: 09:30 AM Name: John Smith Email: john.smith@example.com Company Name: Acme Corporation Job Title: Marketing Manager Check-in Status: Checked-in
Expected Result	• The system should process the information quickly. • The form should submit without any errors.
Actual Result	• The system processes the information quickly. • The form submits without any errors.

Case ID	EU 05
Case Summary	Displaying information only on admin dashboard that is only verified that the check-in information is displayed only on the admin dashboard.
Pre-Conditions	The check-in form has been completed by users and the data has been saved to the database. The admin dashboard is accessible only by authorized users.
Test Procedure	• Log in as an authorized user with access to the admin dashboard. • Navigate to the admin dashboard. • Verify that the check-in information is displayed on the admin dashboard. • Log out of the admin dashboard. • Log in as a non-authorized user without access to the admin dashboard. • Attempt to access the admin dashboard. • Verify that the check-in information is not displayed on the non-authorized user's dashboard.
Test Data	Check-in Date: 2023-04-12 Check-in Time: 09:30 AM Name: John Smith Email: john.smith@example.com Company Name: Acme Corporation Job Title: Marketing Manager Check-in Status: Checked-in To test that the check-in information is only displayed on the admin dashboard, you could log in as an authorized user with access to the dashboard and verify that the data is displayed.
Expected Result	• The check-in information should be displayed only on the admin dashboard. • Non-authorized users should not be able to access the admin dashboard or view the check-in information.
Actual Result	• The check-in information is displayed only on the admin dashboard. • Non-authorized users are not able to access the admin dashboard or view the check-in information.

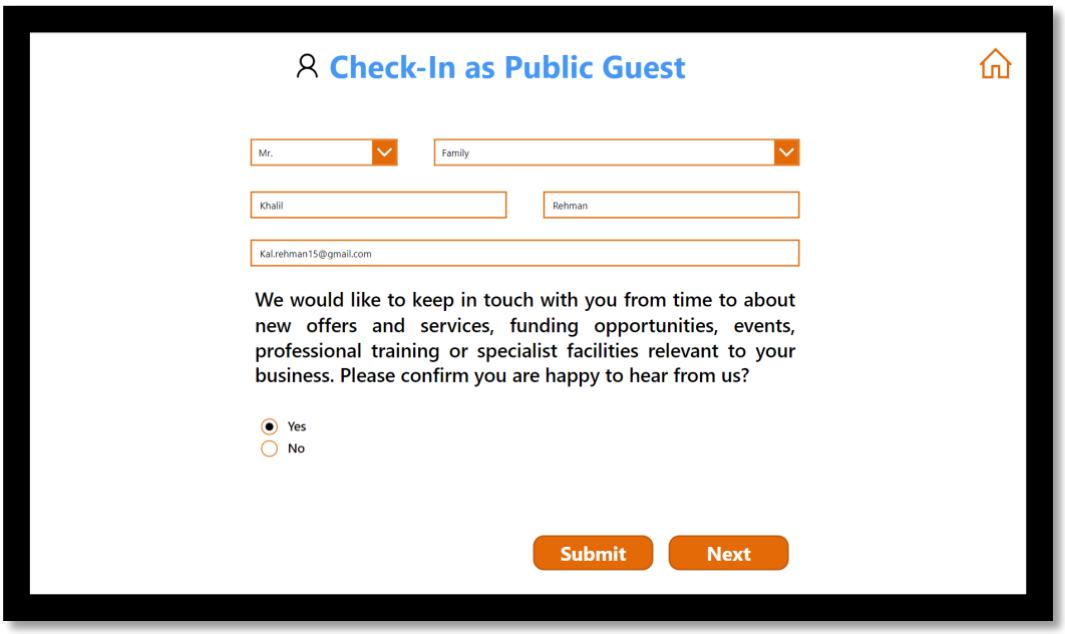
Case ID	EU 06
Case Summary	Allowing users to capture a business card for a company and saving it to the server. To verify that users can capture a business card for a company and save it to the server.
Pre-Conditions	• The check-in system is set up and running. • The user has a device with a camera to capture the business card. • The user has permissions to access and upload files to the server.
Test Procedure	• Click on the “Yes” on the radio button on the marketing capture. • Allow the camera permissions if prompted. • Hold the business card up to the camera and capture an image of the card. • Review the captured image and verify that it is clear and legible. • If the image is not clear or legible, retake the image. • Click on the "Save Business Card" button. • Verify that the business card is saved to the server. • Verify that the business card is associated with the correct company. • Verify that the business card can be accessed from the server.
Test Data	
Expected Result	• The user should be able to capture a clear and legible image of the business card. • The business card should be saved to the server. • The business card should be associated with the correct company. • The business card should be accessible from the server.
Actual Result	• The user is able to capture a clear and legible image of the business card. • The business card is saved to the server. • The business card is associated with the correct company. • The business card is accessible from the server.

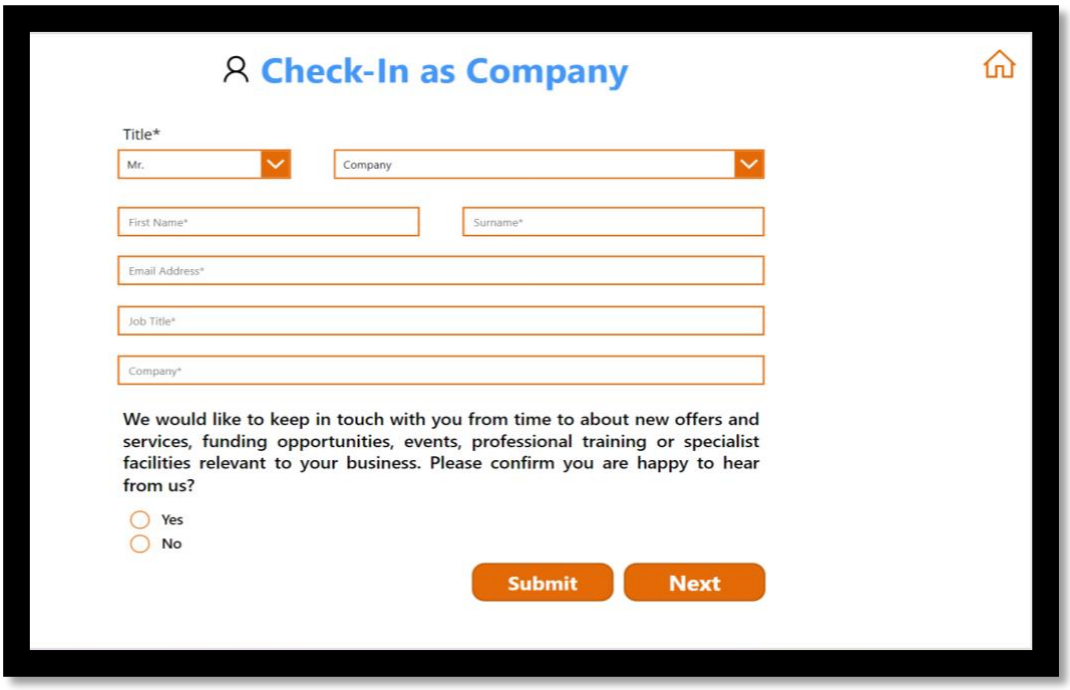
Case ID	EU 07
Case Summary	Generating a name badge label to print screen to print and to verify that users can generate a name badge label, preview it on the screen, and print it.
Pre-Conditions	• The check-in system is set up and running. • The user has permissions to generate and print name badge labels.
Test Procedure	8. Open the check-in system on the device. 9. Click on the "Generate Name Badge" button. 10. Enter the required information, including name, company, and job title. 11. Choose the appropriate template and layout for the name badge label. 12. Preview the name badge label on the screen. 13. Verify that the name badge label contains the correct information and is formatted correctly. 14. Click on the "Print" button. 15. Verify that the name badge label is printed correctly and is legible.
Test Data	
Expected Result	• The user should be able to generate a name badge label. • The name badge label should contain the correct information and be formatted correctly. • The user should be able to preview the name badge label on the screen before printing it. • The name badge label should print correctly and be legible.
Actual Result	• The user is able to generate a name badge label. • The name badge label contains the correct information and is formatted correctly. • The user can preview the name badge label on the screen before printing it. • The name badge label prints correctly and is legible.

7. Evaluation of the Event registration Application

The E.U. (Event Teesside University) event registration system was designed to meet the requirements of both administrators and guests for Expo-tees event check-in. The system can accommodate up to ten guests and includes a dedicated form for documenting their personal information, such as their name, title, company, and email address. In addition, the system includes consent for marketing, allowing the customer to contact their guests in the future while ensuring compliance with the ethical and professional standards discussed in this documentation.

Here is the check-in as a public guest and company form

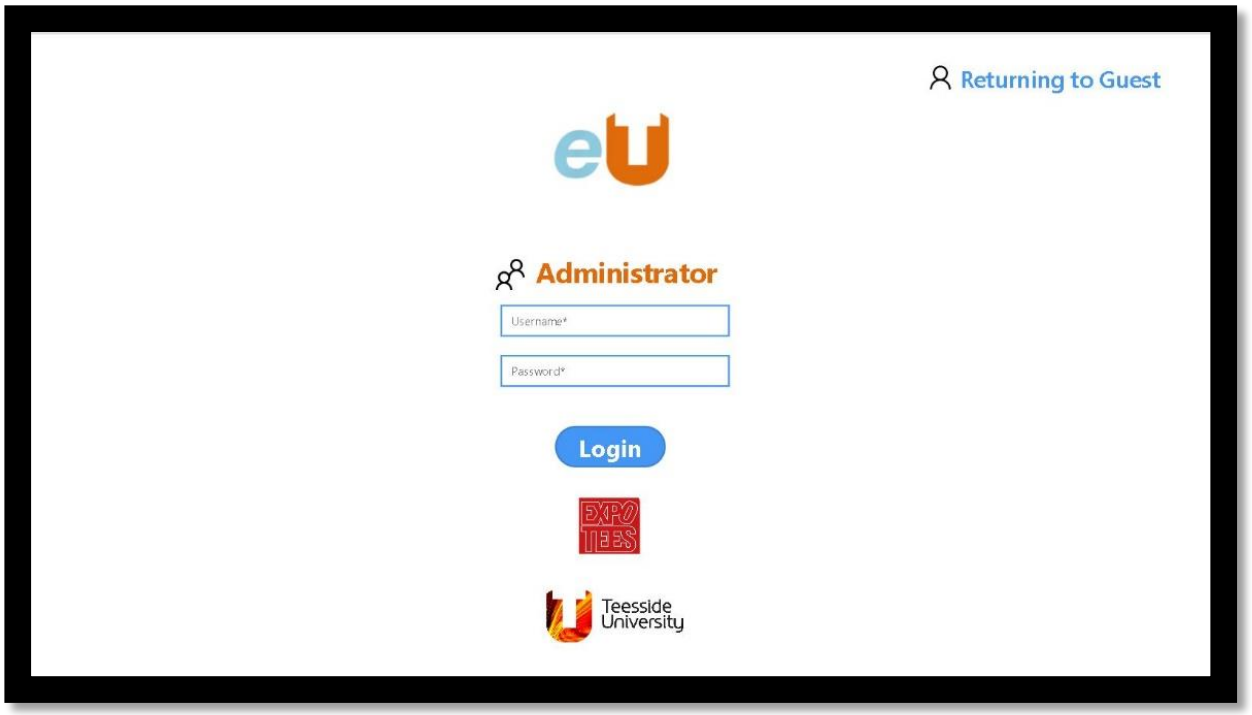


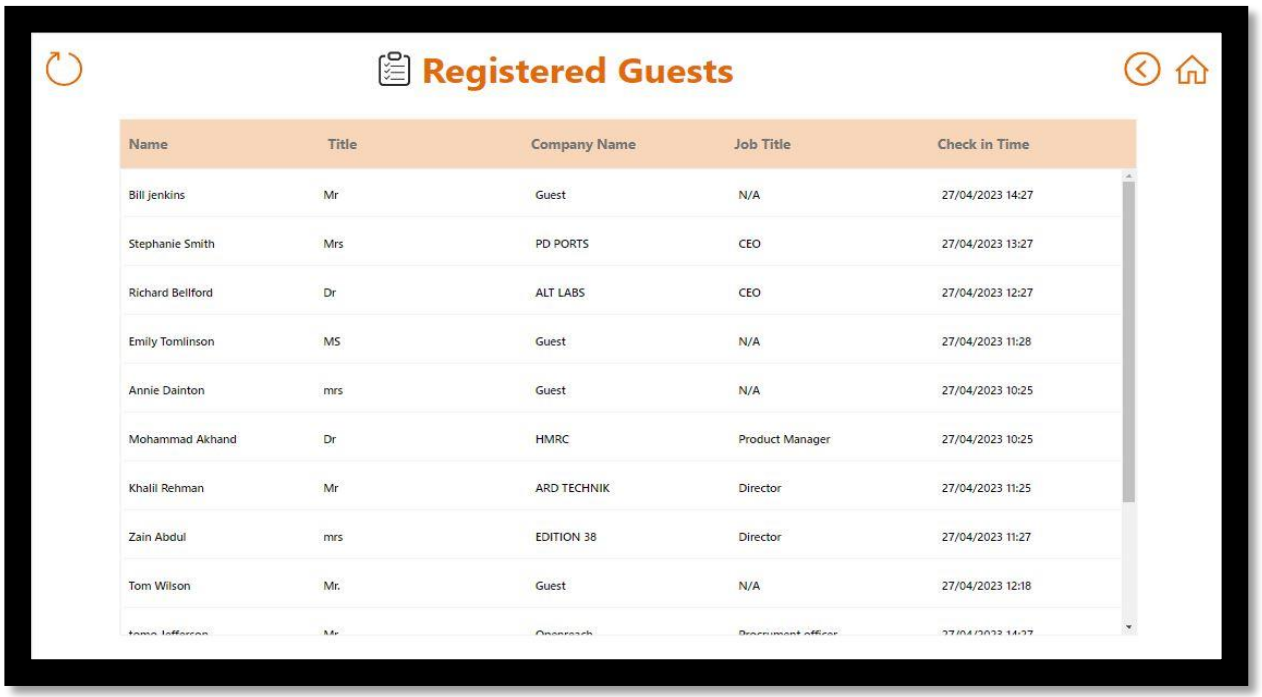


Administrator Dashboards and analytics screens

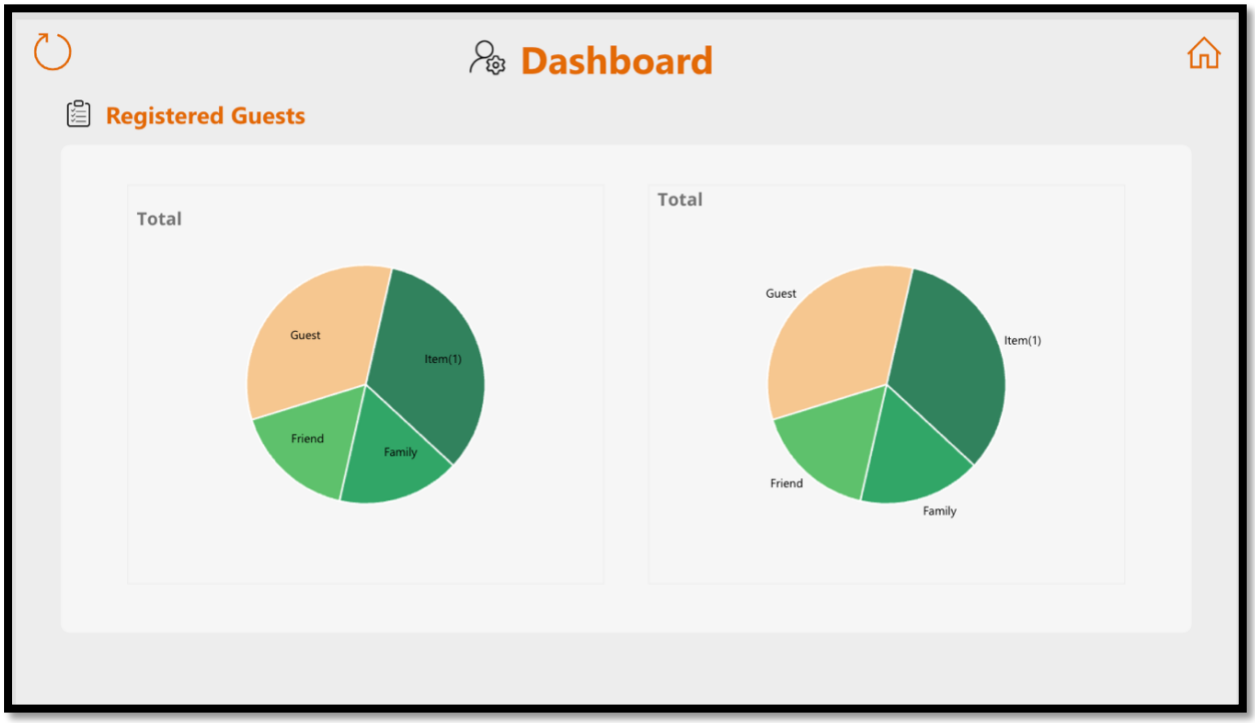
In addition, I have developed an administrator section that requires login credentials to access the event's analytics. The system's analytics are displayed as a pie chart, but the data is not sorted and may contain duplicates of various attendee categories due to their case sensitivity.

Administrator section with the login credentials as well as the event analytics





Dashboard with a pie chart that will portray the amount of guest attended the event



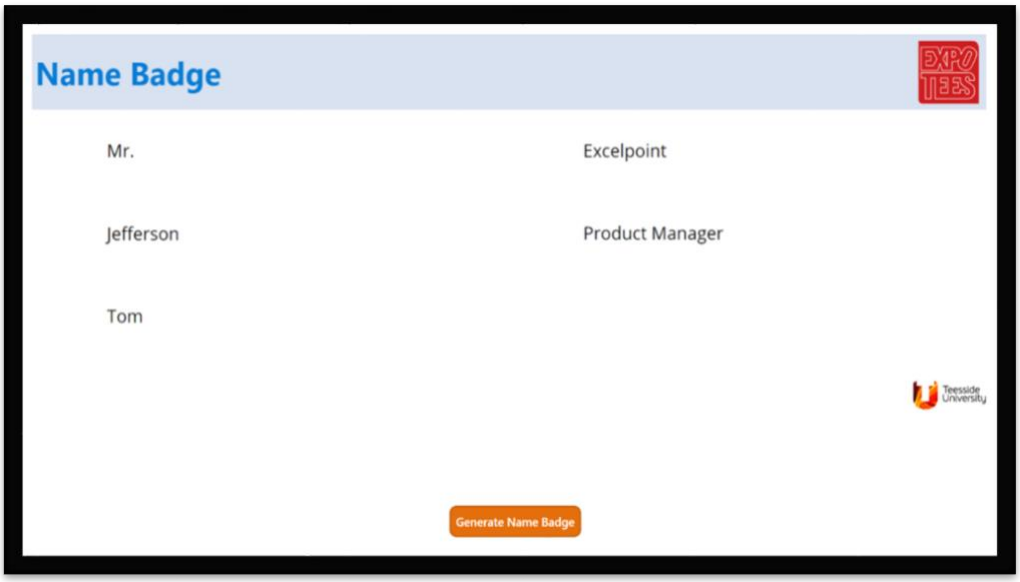
In the next iteration, I intend to improve the dashboard by incorporating additional analytics and segmenting the pie chart to display the total number of guests who entered their information and their check-in times via tables incorporated into the pie charts.

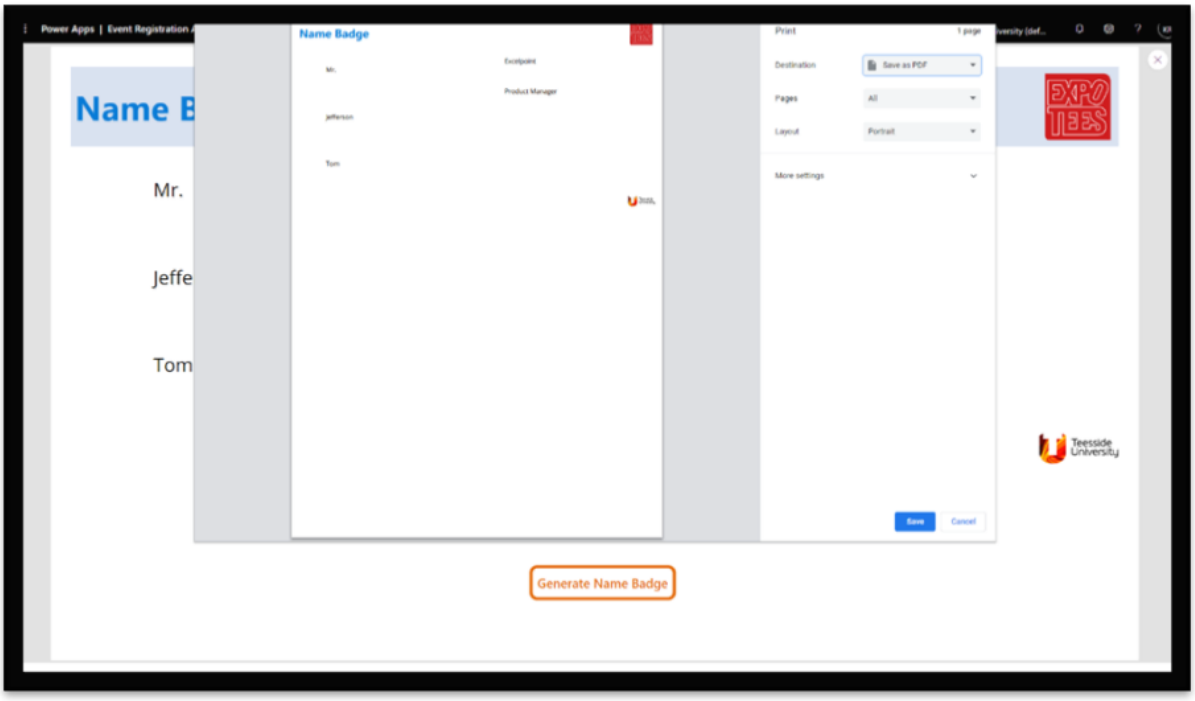
Please continue onto the next page for Print function of generating name badge

Print function to generate name badge

The system also includes a print function that generates name badges with the full name and attendee classification of everyone. However, the size of the badge could not be specified due to the client's ambiguity regarding the dimensions of the physical label and the print limitations of PowerApps. In the future, I intend to modify this function so that it works with label printers that match the dimensions of the insignia. I included print confirmation and error displays within the application, but functionality was limited because PowerApps generated print functionality as a screenshot for a standard printer.

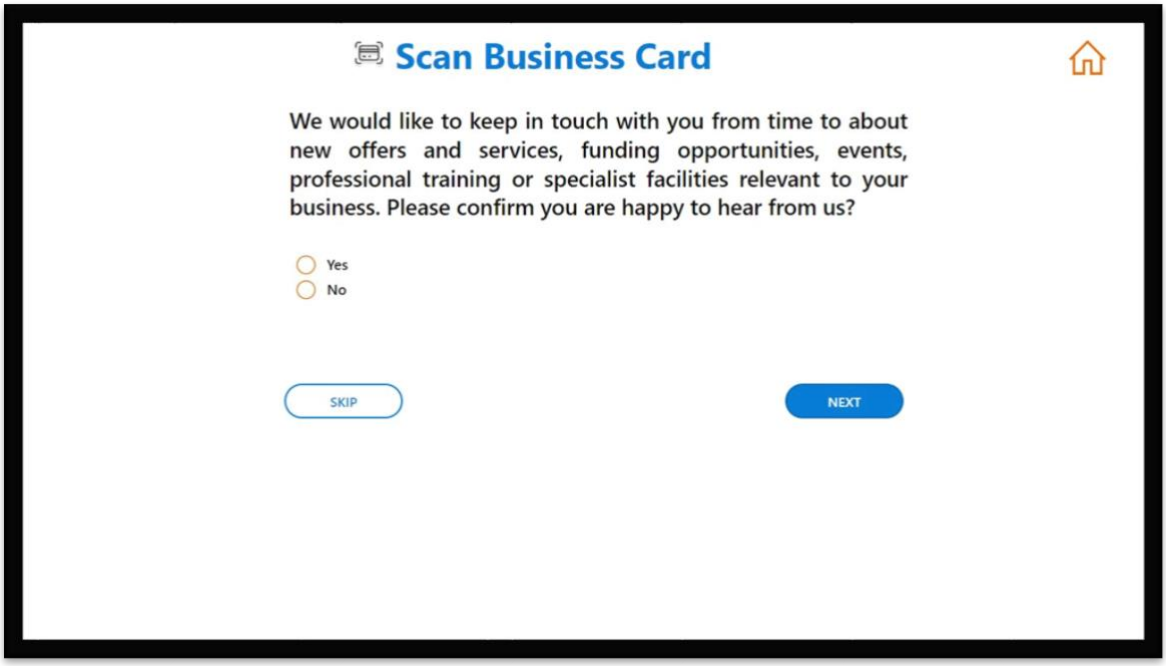
Here is the name badge screen for the prototype within the label print function



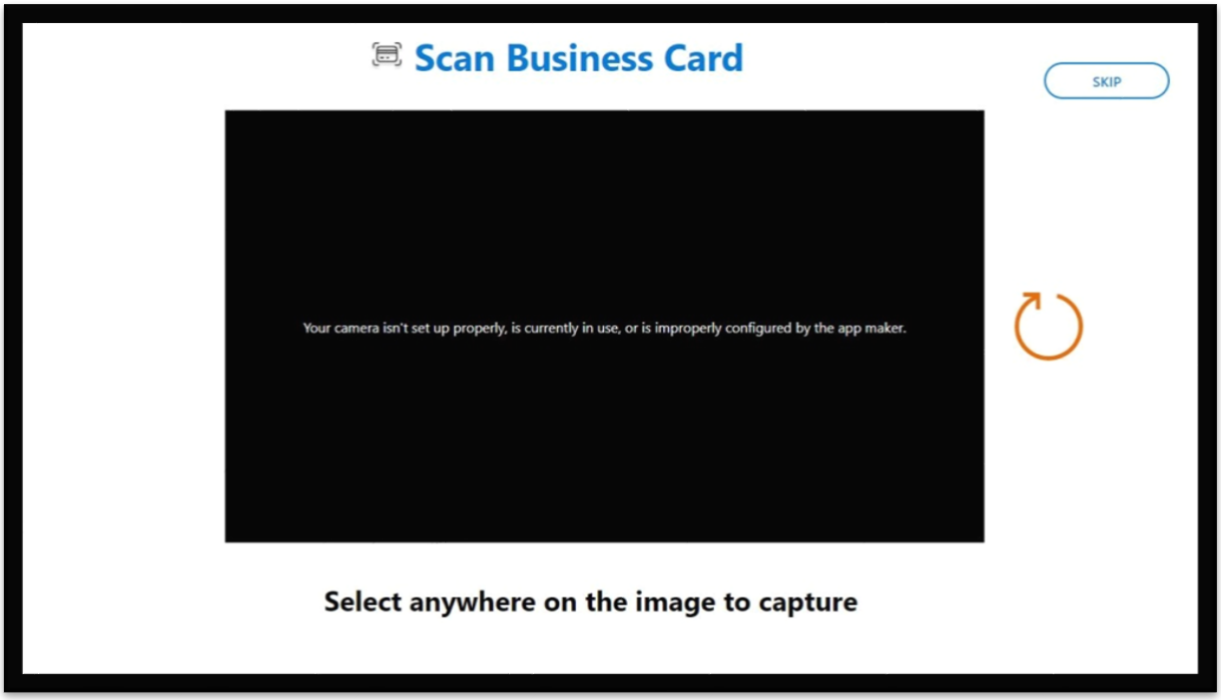


The functionality of capture a business card through the company check in element form.

The E.U Event Registration App offers the added feature of allowing a guest to scan a business using the check-in form as a company. It is important to note that this particular functionality is subject to certain limitations, as PowerApps is only able to capture but not save the information on the application or write it to SQL. In the event that this feature were to be revisited, an alternative approach utilizing machine learning and a dedicated business card scanning solution could be considered. This approach would potentially remove any interference from the background and accurately recognize digital business cards within the E.U Event Registration App.

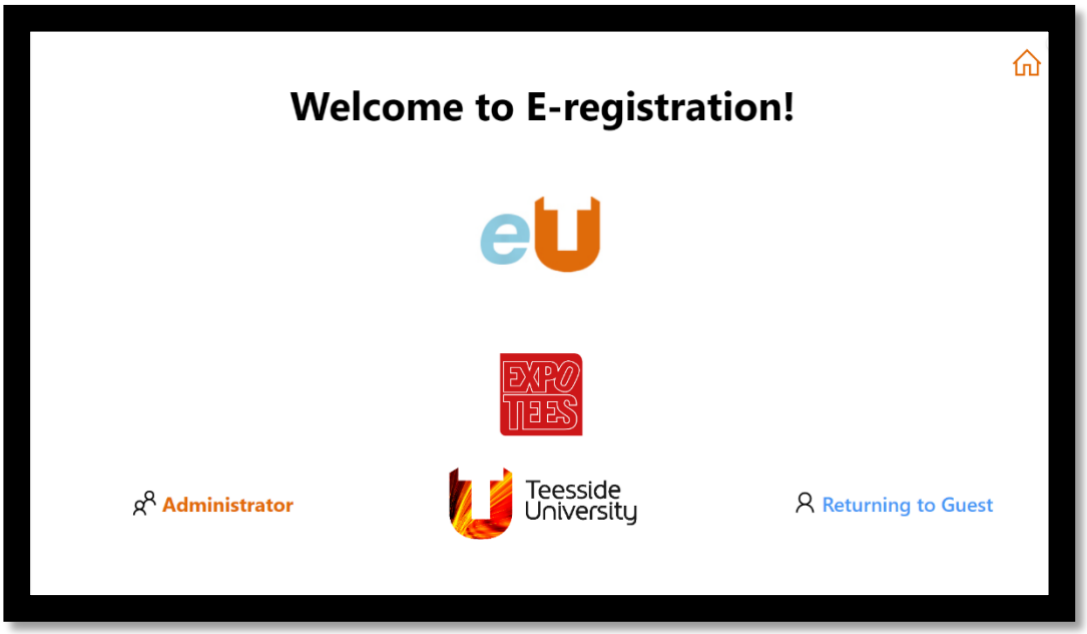


Design of the user experience and user interface of the system application



The design features of the system are customised to suit the client's needs for the Expotees event and enhance their marketing strategy. I accomplished this by emphasising the client's colours, namely those of Teesside University and the Expo-Tees event, with clear and legible typefaces.

Homepage portraying the design features with minimalistic and simple branding



Conclusion

To conclude my evaluation, the low-code application developed with PowerApps has produced a user-friendly experience that reflects the client's brand continuity, not only for the Expotees event. However if can be maybe adapted for any future events that the client may host within their prospectus of event and it could be related to the university event registration application. In addition, the system's data input from the check-in form can be customised to generate a variety of displays from which the admin team can extract data, resulting in a more individualised experience.

7.1 Personal Reflection

As a Business Technology BSc student in my first year, I was tasked with developing a prototype event registration application with a rapid application development tool. This challenging assignment taught me a great deal about the development process and collaborating with clients to deliver a solution that meets their requirements.

Throughout the course of this project, I honed the essential skill of analysing a client's needs and translating them into an appropriate system specification (Almaiah et al. 2022). I learned to be proactive in accumulating information and effectively communicating with the client to ensure that the final solution met their requirements.

I acquired experience with Microsoft PowerApps, a low-code prototyping solution. Although I had no prior experience with this tool, I found it to be relatively user-friendly, especially given my familiarity with databases and UX design editors. I turned to the vast community of Microsoft PowerApps (Sahay et al. 2020) forums and YouTube tutorials for assistance in overcoming development-related obstacles and problems.

Throughout the process of developing the application for event registration, I acquired extensive experience with SQL Server databases. This involved devising and constructing the tables required to store the data collected by the application, as well as composing SQL queries to retrieve and manipulate the data. I also gained an understanding of the significance of data validation and data integrity in databases, as well as how to implement these concepts using SQL Server constraints and triggers (Prakash Pradhan,2022). This ensured that the data entered the database was accurate and consistent, which is essential for the application to function properly.

I remained devoted to Agile development practises throughout the duration of this project, which allowed me to remain organised and focused on delivering a functional prototype within the specified timeframe (Labrèche et al. 2022). This endeavour was a valuable learning opportunity that helped me acquire new skills and gain confidence in my ability to provide clients with effective solutions.

In the future, I would like to develop further with analytic dashboards using perhaps Powerbi as opposed to PowerApps to provide administrators with a more focused user experience, as well as adding machine learning components to make the application even more interactive and seamless.

To expanding my knowledge of this low-code solution and enhancing my skill set with this RAD tool, I would like to investigate additional applications and case studies of personal projects that utilise PowerApps. After conducting research on the application, I've observed a significant increase in PowerApps' capabilities across multiple IT industries. I intend to enrol in bootcamp and academic online learning platforms, including Microsoft's own education accreditation (Microsoft certified 2023). This can broaden my understanding of this low-code system application, allowing me to feel more at ease with minor and large-scale initiatives in various industries.

7.2 Professional, Ethical & Legal Issues

Introduction

As a developer, I designed an event registration application for my customer that would be used on an iPad. It is critical to guarantee that the application instills a professional attitude towards computer technology (Sari, Alici, and Sen, 2018).This system application will be used as an event check in application to check into a specific event while also capturing sensitive details, the following must be considered:

Data security and privacy:

When a visitor arrives and provides their information via the application, the data must be processed in a secure and moral way. It must adhere to the GDPR UK & EU Data Protection Act (Government Digital Service,2011) data privacy requirements.

• Legislation.gov.uk (2016), Article 25- Data protection by design and default.

• Article 30- Data processing records (Article 30 GDPR - Data processing records, 2018).

• Article 32 - processing security- (Article 32 Processing security, Participation, E. (2020).

In addition, since we use SQL as our database, I would have to be compliant and conduct several audits to limit the number of vulnerabilities in the system application, which would then have integrity of security.

The marketing options and the visitors' consent

When collecting personal information from guests, the application includes a radio button that allows them to opt-out when checking in to the event. This will remain in accordance with the client's own clear and simple privacy policy (Teesside, University 2023), which clearly defines how the data is used and to whom it may be supplied. This is clearly shown in the application with a 'yes' and 'no' choice in the check-in form.

Making Ethical Decisions in the Application

Creating an ethical decision-making framework for a check-in application demands prioritising user privacy, security, and impartiality. The data collected by the programme, how it is used, and who has access to it should all be made explicit. It should only gather the necessary amount of data and allow users control over their data. In addition, the application should utilise proper security measures, eliminate prejudice and bias, get informed user permission, educate users about the risks and advantages, and have processes in place to handle user complaints. If these aspects are considered, the check-in application may function ethically and responsibly.

Event check in application risks and hazards

To safeguard the privacy and security of participants' data, the E.U check-in application poses many risks and dangers that must be carefully examined. One of the most serious hazards is the possibility of data breaches, in which participants' personal and sensitive information might be stolen. Inadequate security measures may potentially expose the application to hacking and other sorts of cyber-attacks. Furthermore, the application's data being misused, discrimination and bias, technical issues, and user errors could all have a negative impact on the event experience.

Relationship between the application and the guest guests who utilises the application

With an event check-in application, event organisers may take numerous proactive efforts to raise awareness and stimulate thought about the link between computer technology and society. For starters, they may utilise the application to educate guests about the possible advantages and hazards of using computer technology in society.

Second, they may arrange panel discussions or workshops in which participants and experts can think and explore the ethical aspects of technology usage. Additionally, event organisers can encourage attendees' feedback and participation to help inform future discussions on this topic. Finally, they can incorporate ethical considerations into the application's design, such as limiting data collection to only what are necessary and providing users with control over their data. Event organisers may contribute to encourage responsible and ethical use of technology by adopting these steps, as well as raising awareness of the larger influence of technology on society.

7.3 Rapid application development tool comparison

Low-code application development is gaining popularity among developers since it streamlines the development process and reduces the need for significant coding. PowerApps by Microsoft stands out as a comprehensive solution for developing bespoke business apps among the other low-code solution solutions available on the market (Baird, 2020).

PowerApps features a drag-and-drop interface that is simple to use, and it connects with other Microsoft applications such as Office 365 and Dynamics 365. In addition, it contains pre-built templates for typical use cases, making it easier for developers to get started. Moreover, PowerApps integrates with a variety of databases, facilitating the administration and tracking of data. It supports several platforms, including web, iOS, and Android, and its cost is dependent on the number of users and desired features (Cunningham et al. 2023)

Bubble is another application for low-code solutions that is gaining favour with developers. Bubble enables users to develop bespoke web apps without writing code. It includes a drag-and-drop interface that is simple to use and has several customization choices. Bubble further provides pre-built templates for typical use cases, making it easier for developers to get started. It integrates with a variety of third-party technologies, such as payment processors and email marketing systems, to facilitate the management and communication of users (Hussain, 2020). Nevertheless, Bubble only supports online platforms, and its fee is dependent on the number of app users and desired features (Bubble Pricing, 2023).

Zoho Creator by Zoho is a low-code tool that enables users to develop web and mobile applications without writing code. It includes a drag-and-drop interface that is simple to use and has several customization choices. In addition to offering pre-built templates for typical use cases, Zoho Creator simplifies the onboarding process for developers. It integrates with several third-party applications, such as payment gateways and social networking networks (Zoho creator, 2023). Zoho Creator supports online and mobile platforms, and its pricing is depending on the desired number of users and features (Zoho creator, 2023).

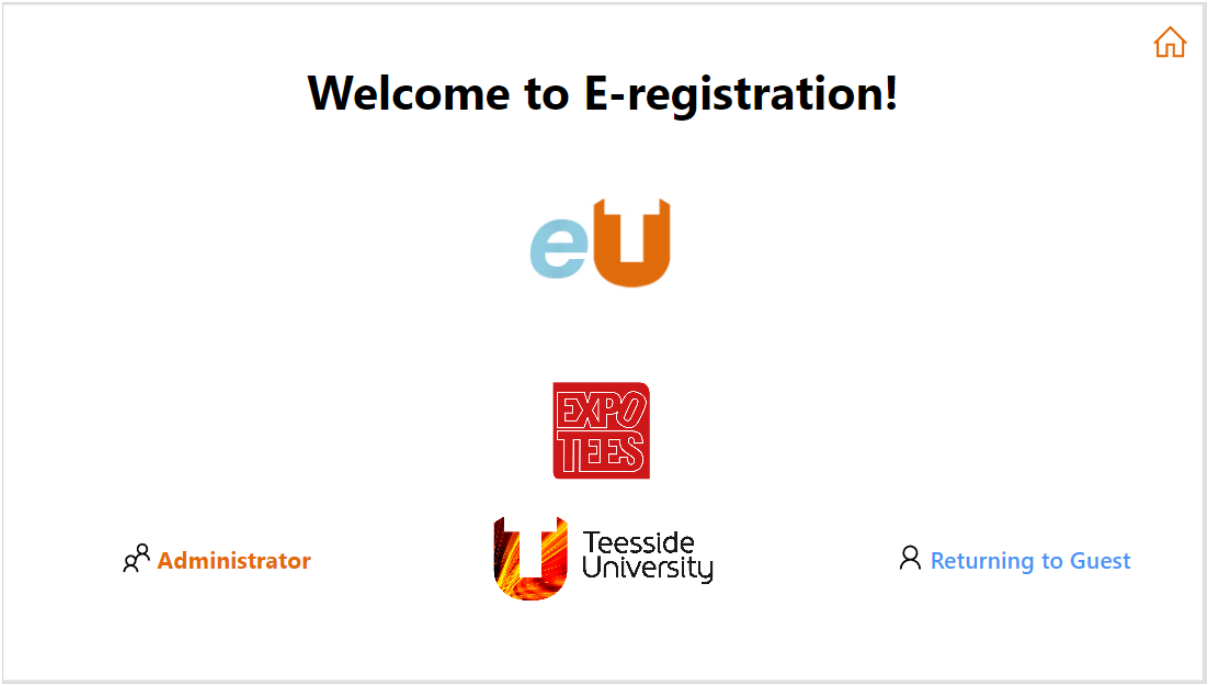
Appian is a low-code tool that enables users to construct unique business apps without writing code. It includes a drag-and-drop interface that is simple to use and has several customization choices. Appian also provides pre-built templates for typical use cases, which makes it simpler for developers to get started. It provides connectivity with a variety of third-party platforms, including Salesforce and SharePoint (Stern,2020). Appian supports online and mobile platforms, and its cost is dependent on the desired functionality, with bespoke pricing available upon request (Appian,2023).

In conclusion, each of these low-code application solutions offers a distinct set of features and benefits. PowerApps is distinguished by its integration with other Microsoft products and its compatibility for different platforms, whereas Bubble offers a greater breadth of integration with third-party applications. Zoho Maker offers interaction with payment channels and social networking networks, whereas Appian is recognised for its unique pricing strategy. In the end, the choice of low-code application will rely on the user's particular demands and preferences.

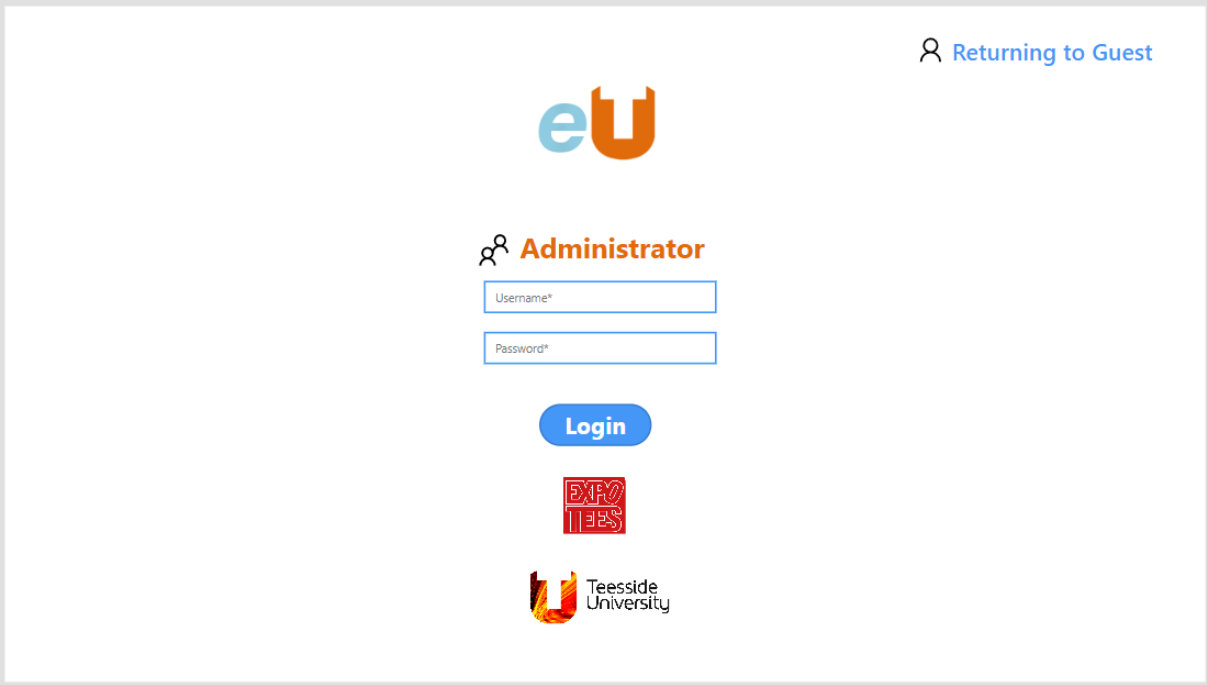
7.4 Screenshots of the E.U registration application

Loading starts up screen

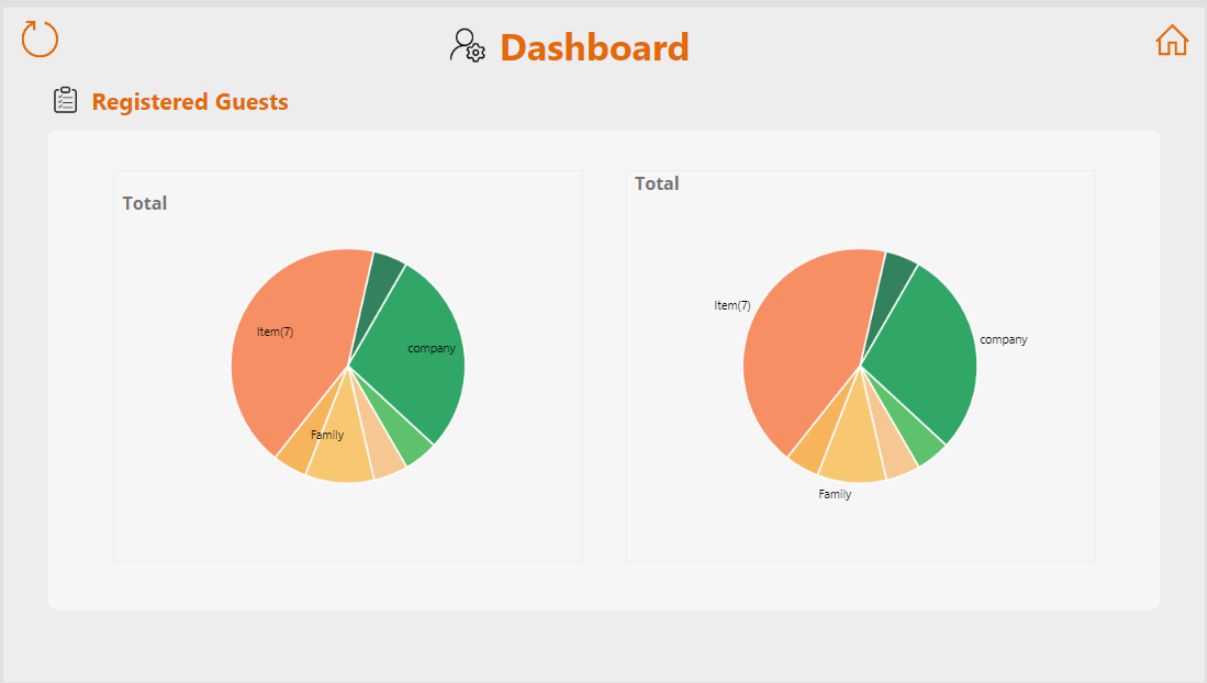
Homepage screen



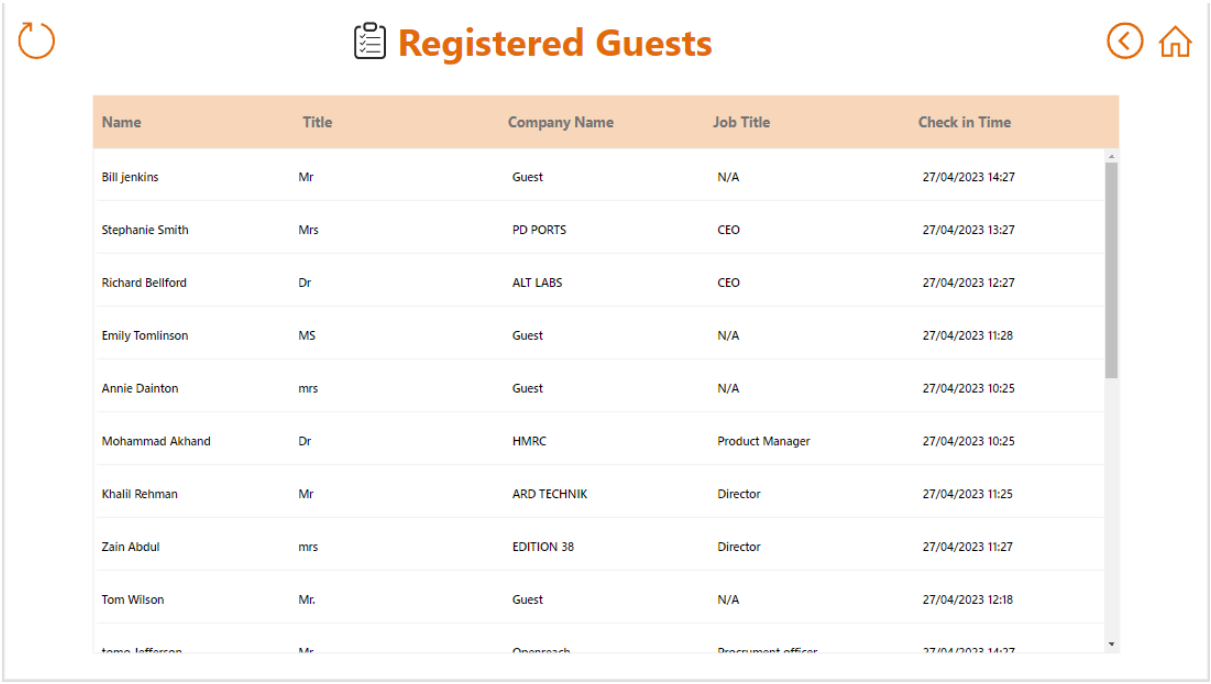
Administrator login screen



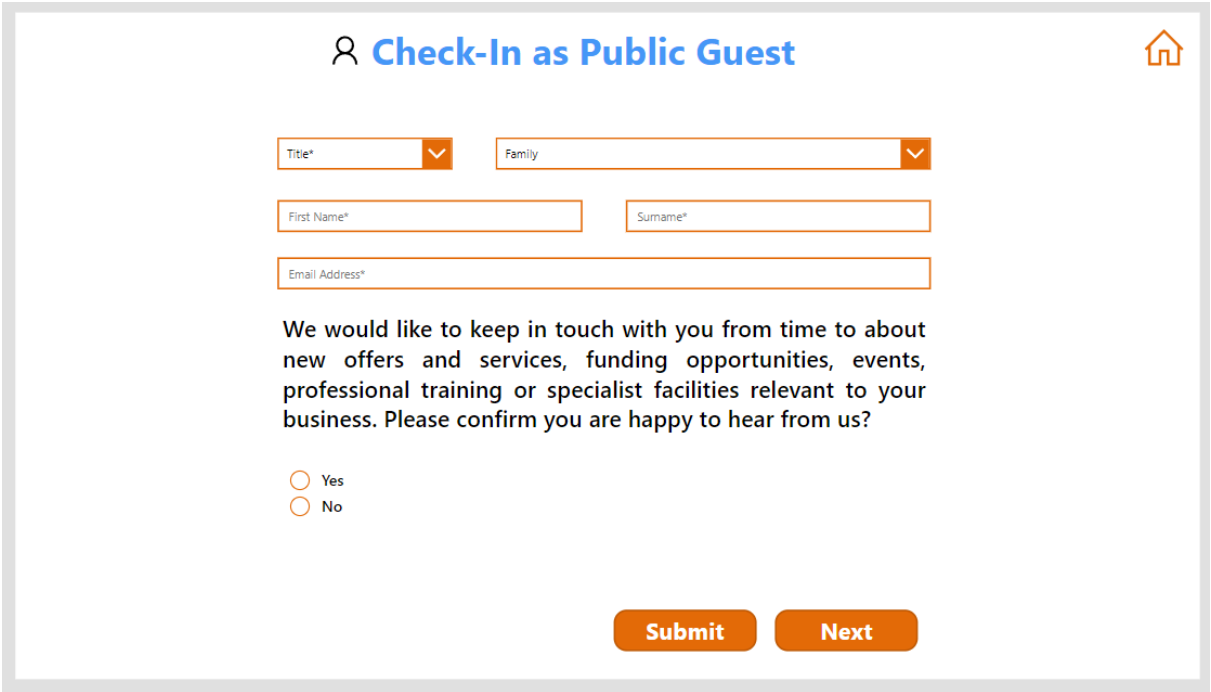
Admin dashboard Screen summary screen



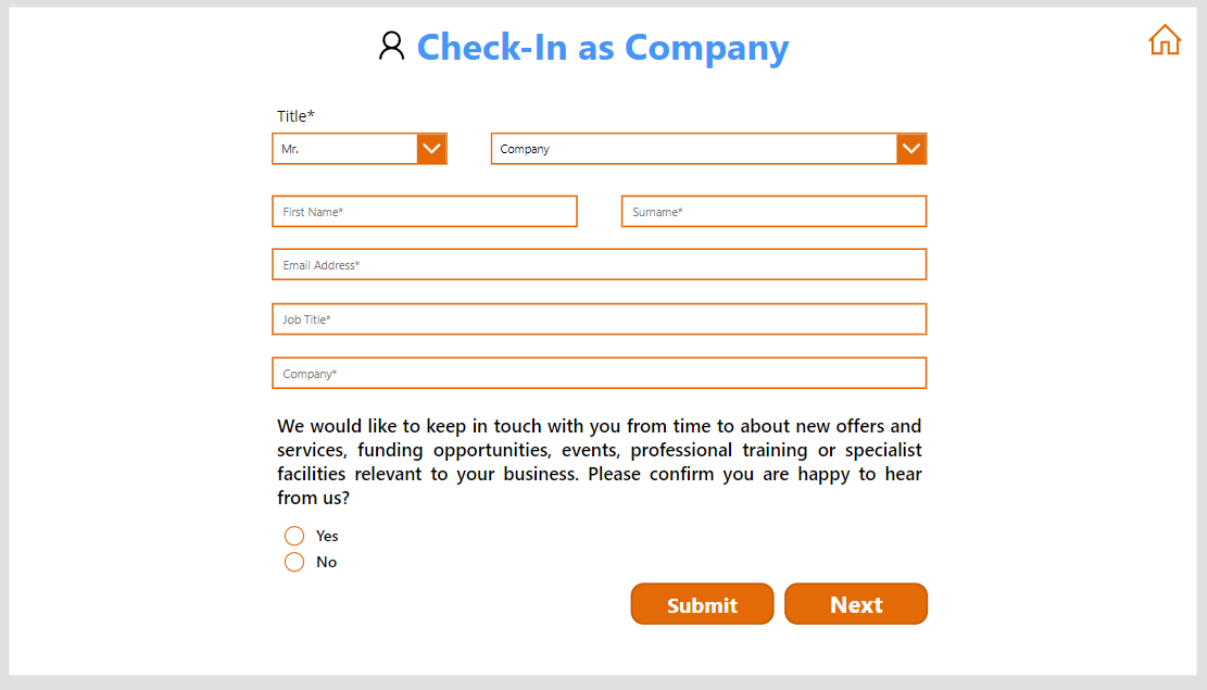
Admin dashboard Screen guest list



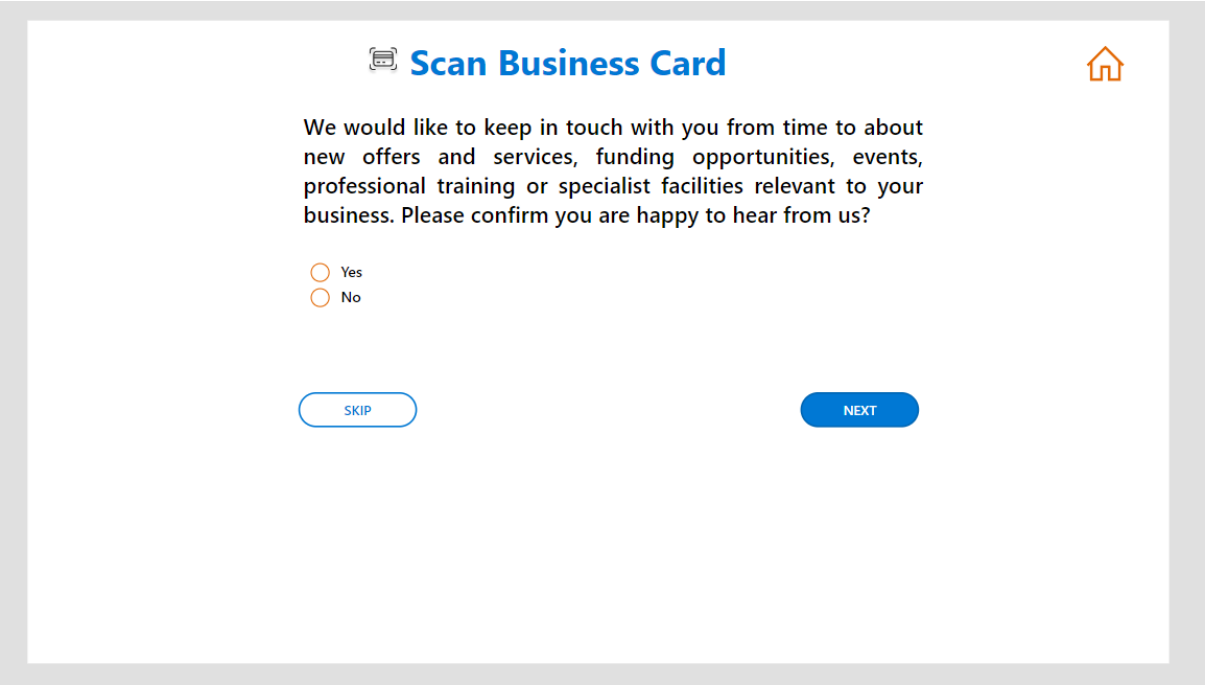
Public check in form screen



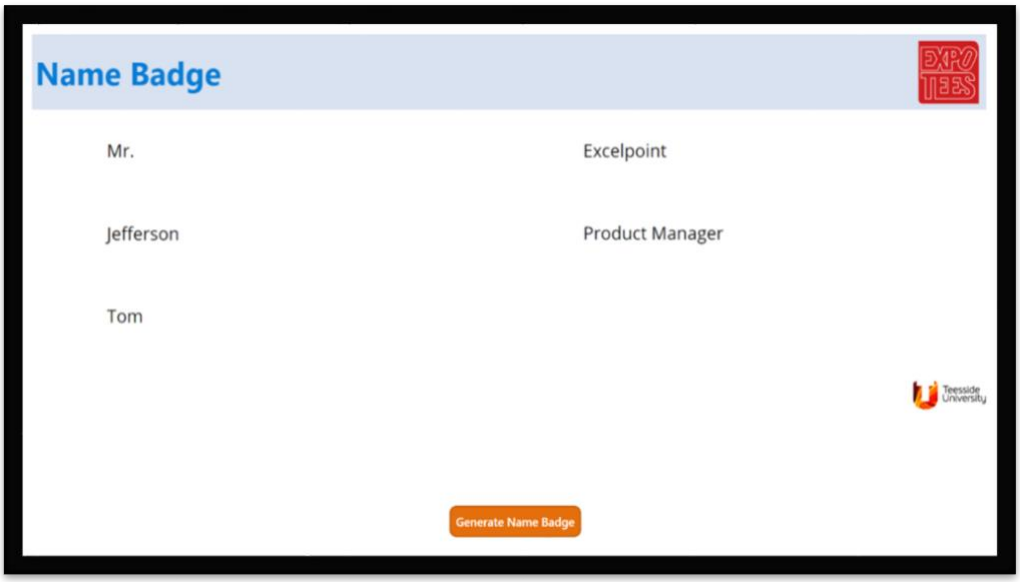
Company check-in form screen

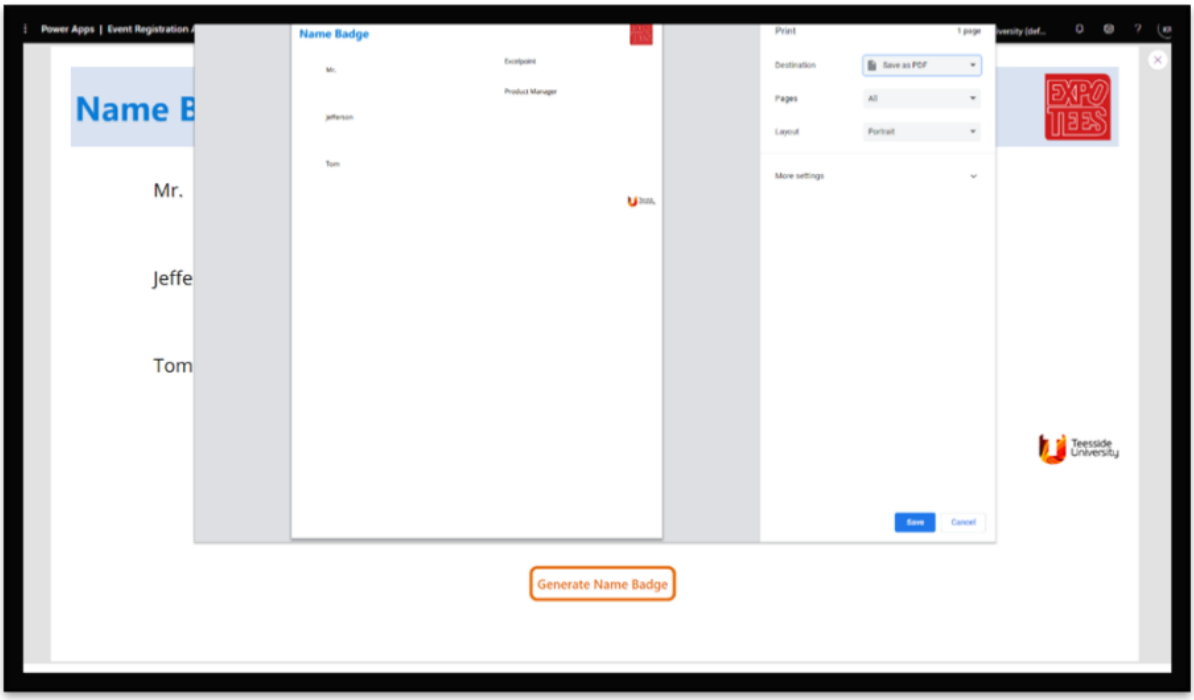


Scan in business card option screen



Name badge print screen





Appendix A Sample of a Name badge of a pre-registered event for a guest at Expotees

Title	Dr
First Name	Madeleine
Surname	Jameson
Company	ACME Solutions
Title	Chief Technical Officer
Education/Industry/Public Sector/Other	Industry
Recruiting/Browsing?	Recruiting
Subject Area(s) tick all that apply (Games/AVFX/Engineering/Computing)	Computing
Email	madeleine@acmeSolutions.com
Telephone	01642 123456
Contact me to invite me to Expotees next year	True
May we contact you regarding other projects that we think you may be interested in?	False

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