

## Initial Plan

### How technology can improve restaurant safety during a pandemic

**Author** – Charles Howe c1725489

**Supervisor** – Carolina Fuentes Toro

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## Project Description

The COVID-19 pandemic has shaken the entire world, forcing individuals and companies to adapt to overcome everchanging restrictions and precautions. Information from the Office of Natural Statistics (2020) shows that “overall, the UK economy, measured by gross domestic product (GDP), shrank by a record 19.8% in the second quarter (April to June) of 2020, following the start of the first lockdown on 23 March”.

My project will focus on the hospitality sector, specifically catering, such as pubs and restaurants in the UK. COVID-19 has had a huge impact on this sector, suggested by information from the ONS, (2020) that reports that “Services such as hospitality – including pubs, restaurants and hotels – recorded almost no output in April and May”. For small independent businesses, a temporary lack of income can have enormous ramifications that can include staff redundancies or even bankruptcy which therefore leads to permanent closure.

Social media plays a large part in modern society, a study by Aarni Tuomi, Iis Tussyadiah, and Mark Ashton shows the use of Instagram in “top restaurants in Finland” and how social media posts are used “to innovate their service offering and business model amidst government-mandated lockdown measures” (Tuomi et al). My project will utilise this research amongst others to help create a design guideline for improving COVID-19 safety within restaurants by utilising technologies.

One solution to help restaurants to overcome constraints is to offer a takeaway service, information from Statistica (2020) suggests that “revenues from online takeaway platforms and restaurant delivery are expected to continue growing, especially as more consumers turn to ordering food during the coronavirus (COVID-19) pandemic, according to Statista’s Digital Market Outlook”. Companies such as Just Eat can help catering companies distribute food to customers using their existing infrastructure but will charge a subscription fee for the use of the service.

My project will look at solutions such as takeaways and social media, amongst others, alongside an exploration of different new technologies such as cloud storage and distribution, internet of things (IoT), and remote applications that can help to improve the safety and performance of the business during a pandemic. Following a human centred design approach, I will create a prototype application that will modernise the industry, allowing customers to order meals remotely, kitchen staff to receive orders through a cloud network, and “out-front” employees to make COVID-19 precautions, this will utilise these different technologies, showing its use in the workplace. The prototype will be a proof of concept and will help to prototype a technological ecosystem that supports and can improve the safety of both customers and employees within the workplace, as well as the performance in different processes.

To help evaluate the current and potential technological solutions in restaurants I will conduct interviews and questionnaires with business owners and employees within the sector. This will help shape and justify the design and flow in my prototype application, with the primary focus being on improving safety and performance within the workplace.

### Work Plan

My work plan consists of 5 different phases that will ultimately lead to the submission of a Final Report. These 5 phases are, Project Plan, Research, Mock-up Prototype, Evaluation and Design Guidelines. On the following page I have included a Gantt chart that shows when each task should be completed throughout the project's duration. The "Contingency plan" for this project involves keeping weekends and holidays unscheduled, so that they can be used if tasks overrun their estimated completion time.

To avoid going off-topic, I will follow the structure described in this project plan, in addition to weekly meetings, that will be conducted between myself and the supervisor (Carolina) to evaluate previous work as well as maintaining consistent progress towards each objective.

## Gantt Chart

Task	Week Commencing		1st February	8th February
	Start	End	M T W T F S S	M T W T F S S
<b>Phase 1 - Project Plan</b>	01/02/2021	14/02/2021		
Complete Research Integrity Online Training Programme				
Initial Plan Draft				
Meeting with Supervisor				
<b>Finalise and Submit Initial Plan</b>				
Complete and Submit Ethical Approval Form				

Task	Week Commencing		15th February	22nd February	1st March
	Start	End	M T W T F S S	M T W T F S S	M T W T F S S
<b>Phase 2 - Research</b>	15/02/2021	07/03/2021			
How COVID-19 has Effectuated Businesses					
Existing Solutions to COVID-19 Restrictions					
Technology in Catering					
Meeting with Supervisor					
Existing Catering Applications					
Interviews and Questionnaires Run					
Presentation and Understanding of Information Gathered					

Task	Week Commencing		8th March	15th March	22nd March
	Start	End	M T W T F S S	M T W T F S S	M T W T F S S
<b>Phase 3 - Mockup Prototype</b>	08/03/2021	21/03/2021			
Understanding What to Build					
Create Initial Prototype					
Meeting with Supervisor					
Review Prototype					
Adjust Mockup and Expand Features					
Focus on UI/UX and Justify Design Descions					
Review Prototype					
Take the Prototype "On Site" and Evaluate Effectiveness					
Final Review on the Successfulness of the Prototype					

Easter Holiday 29/03/2021 18/04/2021

Task	Week Commencing		19th April	26th April
	Start	End	M T W T F S S	M T W T F S S
<b>Phase 4 - Evaluation</b>	19/04/2021	02/05/2021		
Did the Prototype Solve the Initial Problem				
What Issues Were Uncovered				
Meeting with Supervisor				
How Can the Prototype be Improved				
Comparison Between Prototype and Existing Solutions				
Review Evaluation				

Task	Week Commencing		3rd May	10th May
	Start	End	M T W T F S S	M T W T F S S
<b>Phase 5 - Design Guidelines</b>	03/05/2021	16/05/2021		
Create Design Guidelines				
Review Design Guidelines				
Meeting with Supervisor				
Improve Structure and Consistency Within the Report				
Final Proof Readings				
Prepare for Submission				
<b>Submit Final Report</b>				

## Project Aims and Objectives

My project follows a human centred design approach, this means that I plan to “understand the perspective of the person who experiences a problem, their needs, and whether the solution that has been designed for them is truly meeting their needs effectively or not” (DC Design). I aim to achieve this through an exploration of research into the problem itself, as well as technical solutions that are either currently in use or could be utilised in the future. Gaining knowledge from experts through questionnaires and interviews will help further my understanding of the problem and aid in the construction of potential solutions.

The creation of the prototype will apply the knowledge gained through research by making a “Mock-up” application that will serve as a platform for both restaurant employees and customers. The prototype will cover 3 sections, A customer facing application that will allow the user to view the menus, place orders and pay without any face-to-face interaction. The next section will cover the “Front” of the restaurant, this will allow employees to track orders, be notified when food is ready and store COVID-19 safety information, such as Track and Trace. The final section will be used in the kitchen, allowing chefs to view recipes, receive orders/ tickets and call out-front staff to take meals out to customers. I plan to use the software Balsamiq to create this mock-up, showing the flow between stages that users will follow.

My final objective is to take the prototype and test it in a working environment. I plan to photograph the mock-up in use and record how it is used in different scenarios. This will help create a Design guideline, which future projects can build upon the foundations that I will set in this project.

Below I have broken down the project into smaller objectives called “Phases”, these are then divided into minor objectives that I plan to complete throughout the project’s duration. With many objectives being subjective and therefore difficult to measure their completion, I will assess the successfulness of each goal with the assistance of my supervisor in our weekly meetings.

## Objectives

- Phase 1 – Project Plan
  - Obtain the Research Integrity Certificate
  - Complete Initial Plan draft
  - Finalise and submit Initial Plan
    - The finalisation of this report will be assessed through a review of it’s contents by the supervisor, which I will then adapt and improve before submission
  - Complete and submit Ethical Approval form
- Phase 2 – Research
  - Complete research of different areas related to the problem
    - The success of this objective will be measured through an understanding of each research topic that will be written up into the report, then reviewed by myself and the supervisor to ensure the knowledge is relevant and understandable
  - Understand and present how the knowledge gained can help solve the problem
    - Using the research into different areas, apply the knowledge by creating different solutions that help solve the initial problem
  - Run questionnaires and interviews and present findings

- My questionnaires and interviews will be conducted with experts within the catering sector. The questions themselves will not ask personal questions and will be focused on how their restaurants are using technologies, and which safety precautions they have utilised to reduce the spread of COVID-19. I will follow the human centred design approach, this methodology will be based on a mixed-method, using qualitative analysis and quantitative analysis of information. I plan to conduct around 5-6 online questionnaires and 1-2 interviews, either face-to-face or over the phone, and analyse the information by representing the data visually through graphs.
- Phase 3 – Mock-up Prototype
  - Create a software development plan regarding the creating of the prototype using knowledge gained through research
    - The plan should include Objectives, Risks, Costs, Timescales and Benefits of the project. As stated above the prototype will be split into 3 sections, customer facing, out-front staff facing and kitchen facing. My program will need to be easy to use and therefore follow good UI, I will research successful applications and base my prototype on their guidelines.
  - Build an initial Mock-up
    - A working prototype will be created that will show to flow between stages and should be an adequate solution to some of the objectives stated previously. I plan to combine various technologies such as cloud and IOT, showing their utilities within the application. An example of this could be using IOT cameras to detect whether customers and staff are wearing masks.
  - Review the prototype and identify where to improve
    - The Mock-up will be reviewed by myself and the supervisor to help improve the UI and general flow of the program
  - Adapt the Mock-up and expand features
    - Using criticism of the prototype, expand and improve the functionality of the Mock-up by including new features and resolving issues addressed in the previous assessment of the prototype
  - Review the second version of the Mock-up and evaluate its success
  - Take the prototype “On Site” and review features
    - I plan to take the prototype to a local restaurant and evaluate how each feature would work in the environment. This will be subject to COVID-19 restrictions and will need to comply with regulations
  - Conclude on the use and successfulness of the Mock-up
- Phase 4 – Evaluation
  - Understand what went well in the prototype and what should be improved upon in the future
    - With the help of the supervisor review and assess the pros and cons of the Mock-up and look at how it could be improved, given more resources/time
  - How does the Mock-up compare with existing solutions
    - Look at the comparison between the prototype and existing solutions explored in the Research Phase of this report
  - Did I create a working solution to the problem

- Conclude on the successfulness of the solution and determine whether it would help solve the initial problem
- Phase 5 – Design guideline
  - Create a Design Guideline that is easily followable, using the results of my prototype and research into the problem and solutions.
  - Adjust the report so that it is more readable and covers weaker sections in further depth
    - Weekly reviews of the report by supervisor and myself will help identify weaker areas within the project that can be improved upon by going into further detail or exploring more areas of technology that could help in finding solutions.
  - Finalise and submit Final Report

## References

Office for National Statistics (ONS). 2020. The impact of the coronavirus so far: the industries that struggled or recovered. [online] Available at: <<https://www.ons.gov.uk/economy/economicoutputandproductivity/output/articles/theimpactofthecoronavirussofartheindustriesthatstruggledorrecovered/2020-12-09>> [Accessed 3 February 2021].

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