BCIS Project Proposal

Voice Application for Sonnar Interactive

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Document Approvals

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1.0 Terms of reference

1.1 Client Introduction

During our course we will be working with our client; Sonnar Interactive (Sonnar.nz) on their application. The client is primarily a gaming company working on games and software designed to help or work with blind people. In our case, they are interested creating a gaming experience the Google Home and Alexa platforms.

1.2 Project Purpose

Our goal as a team will be working for Sonnar interactive to create/develop a software designed to help and initiate a gaming culture for blind, elderly and or disabled people such as Dyslexic, Illiterate or severe ADHD. Our main goal is to create this gaming experience on both Google Home and Alexa which will broaden the company's user range.

Alexa/Google Home devices are smart speakers that answer requests from a user. The main purpose of the product is to use the voice application platforms to to play a memory game to help younger users with their memory and knowledge

1.3 Problem

The problem that Sonnar Interactive has proposed to us is that their software only exists on Android devices and needs to be quickly and efficiently moved to the voice application platforms to broaden the user range. This is due to the predicted massive explosion in the voice application device user count. The current Sonnar application on Android uses basic user touch input and no voice input with no real room for expansion. Moving the same application to both google home and alexa devices will open their gaming application selection to a wider range.

1.4 What the product does

- The product needs to replicate the same functionality and add more features as the Android application
- The product needs to work without issue with the blind or disabled without any visual prompts as well as being able to interact with young children in an intuitive way.
- The product, will have a UI/UX for both the voice only devices as well as the screen based voice devices.
- The product needs to understand and answer correctly to all user requests.

2.0 Project Rationale

2.1 Why is this project needed?

As it stands, there is no Google Home or Alexa version of most of their gaming applications. The project is needed to expand the user range and expand the teaching range that Sonnar Interactive currently has as there is now a much, much larger market of voice devices that is growing ever larger by the year.

2.2 Existing System

Sonnar has already built the Android version of this application as stated as well as many other android only games. These existing products are already well established, and our goal is to take the same functionality of at least one of these games and move it to voice devices.

The existing system on Android is quite simple and easy to play with. It will store data on a user such as their score, level and so on and then when a user starts a game, they will be directed to a 'mission' or 'level' in which they need to match pairs of sounds to each other. Each level within the game will continuously add more and more sounds for the user to match and after every level is completed the application will unlock a new 'sound pack' allowing the user to match more and more sound types such as animals, machines, ect…

The user can ask the application to start a new game, continue a game, get their current highest score which is the current lowest count of tries used in each level. The application will store a level count of where the user has currently gotten to and will also store the unlocked sounds that the user has gained. This product is expected to take anywhere from 1-3 months at maximum.

2.3 Key Issues

- Google Home is a very new platform, so little is known about the coding for it. We will have to almost entirely learn from scratch.
- Alexa is a constantly updating platform and a lot of the frameworks needed to build a voice application might become outdated very quickly.
- We as a team know very little about voice application and command-based programming so we will have to learn a few more standards of coding.
- We will be using simulation for testing which can show false results and we will only have access to a single Google Home device so live testing will be limited.

2.4 Opportunities

- We will get the work and develop in a very new area of programming and will be working on a platform that may become global.
- We will hopefully learn more about language processing and voice applications which could be very beneficial in a future of smart speakers.
- We will be working with a company that has already had a lot of development work with other voice application platforms and many other apps built for blind/disabled people(s).

3.0 Scope and Objectives

3.1 Scope

The Voice Application (VA) for Alexa and Google Home will be used to build a connection with the blind and disabled community to technology at large as well as building a better relationship with voice application and children to help them learn. Most blind and disabled people have issues using technology and applications, but the VA will have the unique ability to interface with sound to a user.

Sound interfacing is a fresh and rising market due to it being the most natural way of communication so the level of connection to all devices built for it is at a higher level with the users.

The VA already exists on the Android devices and is currently usable as a gaming HUB for many of Sonnar's other games. Sonnar Interactive is hiring us to move one of their existing gaming application along with all its current functionality to voice only devices/platforms.

The VA will work by using many different sounds gathered from public domains. The VA will then listen for the user's prompts and commands to start a new game, continue a game. The VA will then tell the user how many sounds are currently in play and the user will be able to select any sound from the current list. The VA will the respond with a sound randomly bound to do that item in the list. The user will then slowly work to gather information which item in the list contains which sound and then try and match two pairs of sounds. Once the user is able to match a pair, the pair is deleted and the user cannot select those items again. The user can ask the VA at any time to end the current game and exit, or pause the current game or restart the current game. Once the user completes an entire level the VA will ask the user if they want to continue to the next level and if not, will exit back to the main menu.

The application will store the user ID as a unique identification for that specific device. A name given by the user when first opening the application The current highest score given as the lowest count of tries used in a single level The current level that the user has achieved and the current sounds that the user has unlocked.
It will not share this information. The user can then delete his/her highest score and start again, and has the option of starting again which will re-lock the unlocked sounds and restart the user at level 1.

On Alexa, the VA cannot play ambient sounds for an infinite amount of time without a user prompt which limits the applications interactivity and usability.

However, on the Google Home device, the application is able to play ambient sounds along side the applications normal functionality.

3.2 Objective

To create a free, easy to setup and run voice reading application for Google Home devices. Our team's main objective is to create Sonnar's Memory game application on Google Home and Alexa devices; both GUI and Voice-only adaptations.

Sonnar Interactive will lend us both an Alexa device for comparison, and a Google Home device for testing purposes.

Once the application is complete, Sonnar Interactive has asked us to do a usability test in a real-world situation by giving random people in an elderly home a Google Home device; helping them set it up and then testing to see how well they can operate it.

3.3 Requirements

3.3.1 Functional

- The voice application (VA) must not restrict Google Home functionality.
- The VA must not restrict Alexa device functionality .
- The user must be able to use the start command to start a new game.
- The user must be able to use the continue command to continue an already created game.
- The user must be able to use the pause command to pause the current in-progress game.
- The user must be able to use the stop command to stop the current in-progress game to return to the menu
- The user must be able to use the exit command to exit the application
- The user shall be able to ask the application to read out the list of currently active sounds
- The user shall be able to select a given sound out of the list and hear a response.
- The user shall be able to select a second given sound out of the list and hear a response.
- The user shall be able to match pairs of sounds.
- The user shall not be able to select already sounds from already completed pairs.
- The user shall be able finish a level by matching all pairs of sound in the current list.
- The user shall be able unlock a new sound pack by completing all levels with the previous sound pack.
- The user shall be able to listen to the VA reading out a list of sounds
- The user shall be able to listen to the VA read out the menu.

- The user shall be able to listen to the VA read out other user options.
- The user shall be able to select; in the main menu; high scores
- The user shall be able to listen to the VA read out highest scores locally and globally for each sound pack-tier.
- The VA on first start up shall be able to ask the user what to call him/her
- The Va on first start up must be able to understand when a user does not want his/her name given.
- The VA must be able to store the user ID for bookmark retrieval
- The VA must be able to store the username if a user gives a name
- The VA must keep a track of the user's current best tries for an entire level.
- The VA must be able to store a user's highest score
  The VA must move to the next level when a user completes the previous level
- The VA must be able to store a user's current progress of levels.
- The VA must unlock the next sound pack once the user completes the previous sound pack tier.
- The VA must be able to store a user's current sound unlocks.
- The VA must be able to gather the local high scores to read to the user.
- The VA must be able to gather the global high scores to read to the user.
- The VA must be able to gather the user's current position in the local scoring system to read to the user.
- The VA must be able to gather the user's current position in the global scoring system to read to the user.

3.3.2 Non-Functional

- The VA will be able to actively access the user database at any time to save locally
- The VA will be able to actively update the cloud database at any time given a WIFI signal.
- The VA will be usable without visual prompts by disabled or blind users.
- The VA will be usable with visual prompts by non-disabled or blind users.
- The VA UX will be confined and simplistic for disabled or blind users.
- The VA will be completely hand free by using a voice activated system.
- The VA will alternatively be usable on a touch device.
- The VA should retrieve the score and database in under 5 seconds for quick responses.
- The VA will connect to the dynamoDB database using an HTTPS connection.

4.0 Project method OR Approach

4.1 Approach:

The methodology that we researched and found best for our specific project was Kanban

The goal of Kanban is to limit the buildup of excess tasks at any given point in a project.

Limits can then be established on the tasks waiting to be completed and then can be reduced as choke points are identified and relieved. Whenever a limit is reached, it means a choke point has been identified and needs to be removed.

4.2 Justification

Our team had a few different options for our methodology. We were all very used to and experienced with Agile Scrum and we knew of and where possibly interested in waterfall, but ultimately, Kanban was our final choice. The reason for Kanban is because of its simplistic list-based format where we know what to do, we do it and once we're done, the task does not need more thought. We also believe Kanban to be the best methodology for our project since our client knows exactly what he wants and all the exact individual steps we need for the project. Because of this, scrum becomes somewhat useless because it's more of a discovery/researching methodology and Kanban offers a great and clean way to lay out all the individual tasks our client wants.

Kanban is also extremely useful for client/team meetings since most project management systems that run Kanban come with an inbuilt Gantt chart that can be used to plan out every single task and meeting.

Kanban works at its core by having cards that go through a small process. Each card represents a task or a small group of tasks. Each card starts in a *to-do* position and cannot start in any other position. This limits the flow and creation of tasks to a single creation point. The cards then move from *to-do* to in progress or a *doing* list where the task is being undertaken by a member or a group of people. Once a task is complete and a new project version is created, the card then finally ends its life by being moved to the *done* list.

Cards in Kanban do not have a due date and are instead completed based on a JIT (just in time) idea where each task is only needed when it's asked for. This also limits the flow of task creation and undertaking and eventual completion, so the project scope remains small and compact.

This means Kanban is also highly flexible and modular and allows for instant and quick change of plan/task or change of scope for a quick development time. Our team

believes that Kanban is the best methodology for this project simply because of the incremental quick approach to creating tasks and completing them and many other methodologies do not have this same flexible process.

4.3 Kanban Activities:

4.3.1 Roadmap

Most project management systems that implement Kanban have some form of Gantt chart that allows for easy planning and time management of tasks, meetings and so on. Our team has decided to use Jira, which is created and developed by Atlassian.net which has an inbuilt Gantt chart for planning out task life cycles and meetings.

4.3.2 Task Board

With Kanban, you have a task board and a roadmap. The task board is where all the tasks that have been planned across the roadmap start. The board contains at least 3 lists. A *to-do* list, a *in progress* list and a *done* list. Tasks, when first created, start in the *to-do* list.

4.3.3 To-Do List

The to-do list in Kanban shows a list of every single task that needs to be done in order of time due or priority from the roadmap. Each task can be chosen by a member/developer at any time or by priority and undertaken. When this is done, the task is moved from the to-do list to the in-progress list.

4.3.4 In-Progress List

The in-progress list contains all task that are currently being undertaken. With Kanban, it is unwise to undertake more than one task at a time, so in most cases, there will only ever be a few tasks equal to the number of members/developers in the in-progress list.

4.3.5 Done List

All tasks that are completed then move from the in-progress list to the done list. Tasks should be finished in order of time or priority, but Kanban is flexible and allows for task completion out of order.

4.3.6 Team meetings/Client meetings

Client meetings and team meetings still work the same way as many other methodologies but are planned out whenever the team is available to meet. Since the way Kanban works is the project manager can easily see what is in progress, a daily meeting is not necessary and it’s only when big changes come or when a planned meeting is upcoming that a team will need to meet.

5.0 Project Plan

5.1 Project Milestones

Milestone	Date	Status	Responsibility	Comments
Meet & greet kick-off meeting	26/02/2019	Done	Project Team	Everyone met each other for the first time and went over contact details, names and time scheduling
Coordinator meeting	1/03/2019	Done	Project team & project coordinator	The team met each other again formally alongside the coordinator. We shared contact info and discussed meeting standards and client info and project details.
Client Meeting	8/03/2019	Done	Project Team, coordinator, & client	The team and coordinator met with the client and discussed requirements, project overview, upskilling, meetings, contact info and project/product descriptions.
Draft Project Proposal	12/03/2019 - 15/03/2019	Ongoing	Project Team	The team worked on the first draft project proposal and beginning documents. This took a while due to the client being very light on information so until the 15th we didn't know too much. On Friday we spent 4 hours working on the proposal. Requirement info and deeper project info was acquired through email contact with the client.
Client Meeting 2/Lab Meeting	19/03/2019	Ongoing	Project team, client, company dev team	The team planned to meet the dev team on Friday the 15th but the client was not available until Tuesday, so the meeting had to be pushed forward.

6.0 Skills Analysis

Required Skills/Knowledge	Description	Type	Currently Capable
Software Development	General Software development knowledge is needed to complete the project for Google Home	General	All
Google Action Scripts	Google action scripts are effectively JavaScript but with built in google API. It is a very simple scripting method for any google products	Technical	Sundeul Donna Kim, Sanghun Kim
Java	This will be a small part of the programming life cycle as most of it is in JavaScript and C#	Technical	All
C#	This will be one of the main programming languages alongside JavaScript	Technical	Nikkolas Diehl, Justin Bishop, Howard Zhu
NoSQL	NoSQL will be used for the database since we're using firebase. Firebase allows for the use of many different languages such as JavaScript, C++, java, swift and so on.	Technical	All
Google API	Google API's will mostly be built with the use of google action scripts but google API's will need to be understood for the project.	Technical	None
Voice command processing	Actual voice processing will not be needed for this project as that is already handled by the google API's, but command-based languages will be used (such as SSML)	Technical	None

SSML (Speech Synthesis Markup Language)	SSML is a very basic, command prompt-based scripting language for voice applications. It is very similar to HTML	Technical	None
Lambda	Event driven, serverless computational platform provided by Amazon	Technical	None
GitHub	Platform for code sharing and file sharing and version control	Technical /Collaborative	All
Visual Studio IDE	Visual studio is a very easy to use IDE for programming applications.	Technical	All
Communication	The ability to share and effectively speak to each other on a personal and formal level.	Interpersonal/ Professional	All
Collaboration	The ability to work efficiently as a team whilst interlocking individual skills to create a stronger product	Interpersonal/ Professional	All
Time management	The ability to properly and efficiently manage our time and work together to quickly finish projects/products	Personal	All
Documentation	This is required for the project/product to make sure we are always up to date and keeping track of our work	Personal	All

7.0 Cost Estimation

Estimate all costs incurred - The below costs are all included GST

Mentor $142 per hour

Team member $30 per hours (Training period $20 per hours)

Stage	Item / Task description	Time (Hours)	Cost <Items>	Subtotal ($NZD)	Total (Include GST)
Pre-Research stage	Team meeting(s)	10	30**<5>**	1500	
	Team meeting(s) with mentor	3	30**<5>** 142**<1>**	876	
	Team meeting(s) with sponsor	3	30**<5>** 142**<1>**	876	
	Project proposal	12	30**<5>**	1800	
Total		28			$5,052
Design Stage	Skill training	150	20**<5>**	15000	
	Obtain application resources from client	2	100	200	
	Team meeting(s)	10	30**<5>**	1500	
	Team meeting(s) with mentor	3	30**<5>** 142**<1>**	876	
	Team meeting(s) with sponsor	3	30**<5>** 142**<1>**	876	
	Development planning	10	30**<5>**	1500	
Total		178			$19,952
Development Stage	Coding	100	30**<5>**	15000	
	Team meeting(s)	20	30**<5>**	3000	

	Team meeting(s) with mentor	10	30**<5>** 142**<1>**	2920	
	Team meeting(s) with sponsor	10	30**<5>** 142**<1>**	2920	
Total		140			$23,840
Testing and Maintenance	Testing Code section	20	30**<5>**	3000	
	Testing Application running in real world	20	30**<5>**	3000	
	Maintenance	20	30**<5>**	3000	
	Team meeting(s)	30	30**<5>**	4500	
	Team meeting(s) with mentor	12	30**<5>** 142**<1>**	3504	
	Team meeting(s) with sponsor	12	30**<5>** 142**<1>**	3504	
Total		114			$20,508
Deliver	Deliver Project	-	-	-	
Additional Cost	Smart Speaker Alexa & Google	-	250**<2>**	500	
Total					$500
		Hours			**Prices**
Total Costs		460			$69,852

8.0 Disclaimer

Auckland University of Technology
Bachelor of Computer & Information Sciences

Research & Development Project

Disclaimer:

Clients should note the general basis upon which the Auckland University of Technology undertakes its student projects on behalf of external sponsors:

While all due care and diligence will be expected to be taken by the students, (acting in software development, research or other IT professional capacities), and the Auckland University of Technology, and student efforts will be supervised by experienced AUT lecturers, it must be recognised that these projects are undertaken in the course of student instruction. There is therefore no guarantee that students will succeed in their efforts.

This inherently means that the client assumes a degree of risk. This is part of an arrangement, which is intended to be of mutual benefit. On completion of the project it is hoped that the client will receive a professionally documented and soundly constructed working software application, some part thereof, or other appropriate set of IT artefacts, while the students are exposed to live external environments and problems, in a realistic project and customer context.

In consequence of the above, the students, acting in their assigned professional capacities and the Auckland University of Technology, disclaim responsibility and offer no warranty in respect of the "technology solution" or services delivered, (e.g. a "software application" and its associated documentation), both in relation to their use and results from their use.

9.0 Team agreement

Team

- It is agreed that Nikkolas Diehl will act as team leader/point of contact
- It is agreed that Justin Bishop will be the meeting minutes collector and team member
- It is agreed that Sundeul Donna Kim will be the meeting recorder and team member
- It is agreed that Howard Zhu will be a team member
- It is agreed that Sanghun Kim will be a team member

Member Duties and Expectations

- All team member will complete their assigned tasks on time
- All team member will be expected to inform the rest of the team if they cannot or unable to complete a task/attend a meeting
- All team members should attend all lectures, sessions and meetings
- All team members should complete a fair and equal share of work, documentation and development
- All team members should verse themselves in the documentation and upskilling needed for this project
- All team members are expected to take client meeting notes

Rights

- All team members have the right to contact the client/coordinator for help or complaints
- All team members have the right to ask for advice/help from any and all team members.
- All team members have the right to share ideas/opinions/development duties and work load.
- All team members have the right to other commitments and a personal life

Conflict Resolution

- If there is any conflict within the team, we will try work to resolve it internally without involving our coordinator or client. However, if the conflict cannot be resolved internally and independently, all team members have the right to ask for help from the third parties to resolve the conflict

We will communicate via

- Facebook Messenger

- Email
- Slack
- Jira
- Discord

Work

- All team members should work to not break the GitHub
- All work uploaded to Jira should be the creators own work.
- All team members should be keeping a personal log due in week 14 of semester 2

Resolutions (if rules are broken):

- The person that breaks the GitHub should fix it or roll it back
- Any conflict that is not resolved should be apologized for
- The person that breaks the code should be responsible for fixing it

Signatures

15/03/2019

11.0 Communication Management plan

11.1 Introduction

The Communication Management plan will outline the processes used for team communication and team collaboration for the Voice Application project. This plan will remain subject to amendment over the course of the entire project.

11.2 Communication methods

The main form of communication within the team will be through a group chat on Facebook and weekly meetings, Other forms of communication include email, texting, and Slack.

The team will contact the mentor and client/Sonnar staff through one appointed person within the team via email; Nikkolas Diehl has been elected as that point of contact. The group will also be able to communicate with the client directly through a group chat in Slack, this communication will be limited to progress updates and non-urgent help.

11.3 Collection and filing structure for gathering and storing project information

All files will be stored in a Google drive dedicated to the project, accessible by all team members. Documents will be uploaded to the Jira board (sonnarvoiceapp.atlassion.net), the final version of these documents will be printed out as a hard copy for the client.

11.4 Distribution structure (what information goes to whom, when, and how)

Once a team member has completed the work assigned to them, they will then upload the document to the google drive and let the team know it is complete via the group chat. The team will then be able to view the document and edit it if needed, however if a team member is to edit other members work, they must first let them know in the group chat. Once a document has been reviewed by another team member, the document will then be uploaded to the Atlassian board.

11.5 Format, content, and level of detail of key project information

Project information documents will follow the format of the templates provided by AUT and external sources. These documents include: Project Charter, Scope and Objectives, Project method or Approach, Rationale for the project, Project Plan, Cost Estimation, Skills Analysis, Team Agreement, Terms of Reference, Risk Management, Work Breakdown Structure, and Quality Assurance Plan.

11.6 Technologies, access methods, and frequency of communications

The technologies and access methods involved in communication and collaboration will include Google drive, Atlassian, GitHub, email, and Social media. Team members will check all these daily.

11.7 Method for updating the communications management plan

The project manager is responsible for updating the Communications management plan throughout the project's life time, the updates will be made to accommodate new forms of communications or file management. Any changes made to the plan must be relayed to the team.

11.8 Escalation procedures

While more than a person is working on a project as a team, fast and quick communication is essential for effective problem solving. For this, team members will have to define issues based on the following form.

Priority	**Definition**	**Decision Authority**	**Timeframe for Resolution**
1	Critical facts which could lead to project failure or over budget	Team	Within 6 hours
2	Facts of the project which could delay the project	Team	Within 24 hours
3	Lower quality result caused by mis-understanding of level of tasks	Team	Work continues after weekly meeting

11.9 Stakeholder communications analysis

Stakeholders	Document Name	Document Format	Contact Person
Jarek Beksa, Akbar Ghobakhlou	Terms of Reference	Soft copy and Hard copy	Nikkolas D.
Jarek Beksa, Akbar Ghobakhlou	Scope and Objectives	Soft copy and Hard copy	Nikkolas D.
Jarek Beksa, Akbar Ghobakhlou	Project method or Approach	Soft copy and Hard copy	Sanghun K.
Jarek Beksa, Akbar Ghobakhlou	Skills Analysis	Soft copy and Hard copy	Nikkolas D.
Jarek Beksa, Akbar Ghobakhlou	Cost Estimate	Soft copy and Hard copy	Howard Z.
Jarek Beksa, Akbar Ghobakhlou	Project Plan	Soft copy and Hard copy	Nikkolas D.
Jarek Beksa, Akbar Ghobakhlou	Disclaimer/appendix	Soft copy and Hard copy	Howard Z.
Jarek Beksa, Akbar Ghobakhlou	Stakeholder register	Soft copy and Hard copy	Justin B.
Jarek Beksa, Akbar Ghobakhlou	Document Control	Soft copy and Hard copy	Nikkolas D.
Jarek Beksa, Akbar Ghobakhlou	Risk management	Soft copy and Hard copy	Sundeul D. K.
Jarek Beksa, Akbar Ghobakhlou	Work Breakdown Structure	Soft copy and Hard copy	Sanghun K.

12.0 Stakeholder register

Name	Internal/External	Position	Project Role
Nikkolas Diehl	Internal	Student	Project Leader, Developer
Howard Zhu	Internal	Student	Developer
Justin Bishop	Internal	Student	Developer
Sanghun Kim	Internal	Student	Developer
Sundeul Donna Kim	Internal	Student	Developer
Akbar Ghobakhlou	Internal	Mentor	Supervisor
Wei Qi Yan	External	Moderator	Moderator
Jeong Su Jeon	External	Sonnar Interactive Staff	Client Developer
Jarek Beksa	External	Sonnar Interactive Manager	Client, Product Owner

13.1 Stakeholder Management Strategy

Name	Level of Interest	Level of Influence	Potential Management Strategies
Jarek Beksa	High	High	Jarek has the highest priority for making decisions with the Voice Application project. Jarek prefer obtains the project occasionally to get familiar with the current progress and make any further decisions. Jarek normally updates and reply emails within 24 hours and face to face meeting twice a week.
Akbar Ghobakhlou	Low	High	Akbar is the supervisor of the Voice Application project. Since the project is external so that Akbar is very regarded how we are working with the client. Giving advice and feedback during progress. Meeting with Akbar once a week.
Jeong Su Jeon	Low	Low	Jeong is the developer staff of Sonnar. We will only see Jeong a few times since he is only sharing his coding experience with us.
Wei Qi Yan	Low	Low	Since Wei Qi Yan can only vacate some of his valuable time to us. He comes for the proposal and final project deliverable and giving his feedback to us.

13.0 Risk Management

Risk	Probability of Risk	Size of Loss (Days)	Risk Exposure (Days)
Team underestimates a task(s)	20%	5	3
A team member leaves drops the paper/ health reasons	20%	7	4
Delays in approvals/ response from client	40%	5	2
Sudden growth in requirements	10%	14	7
System outages: the provided device for testing (Google home) is not available	15%	20	10
Learning curves lead to delays: Lack of learning resources	20%	20	10
Change in Project	20%	25	10
Total Exposure:			46

14.0 Work Breakdown Structure (WBS)

1 Voice Application

1.1 Project Initiation
1.1.1 Kick-off meeting with client & project moderator
1.1.2 Establish project definition
1.1.2.1 Develop project Terms of Reference
1.1.2.2 Develop Project rationale
1.1.3 Develop scope & objectives document
1.1.3.1 Define project scope
1.1.3.2 Define project objectives
1.1.3.3 Identify high-level requirements
1.1.3.3.1 Identify functional requirements
1.1.3.3.2 Identify non-functional requirements
1.1.3.3.3 Identify key deliverables of the project
1.1.4 Define project organization
1.1.4.1 Identify end-users and stakeholders
1.1.4.1.1 Create stakeholder register document
1.1.4.2 Identify project roles and responsibilities
1.1.5 Decide on a development approach with justification
1.1.6 Develop risk register document
1.1.7 Establish Project Charter

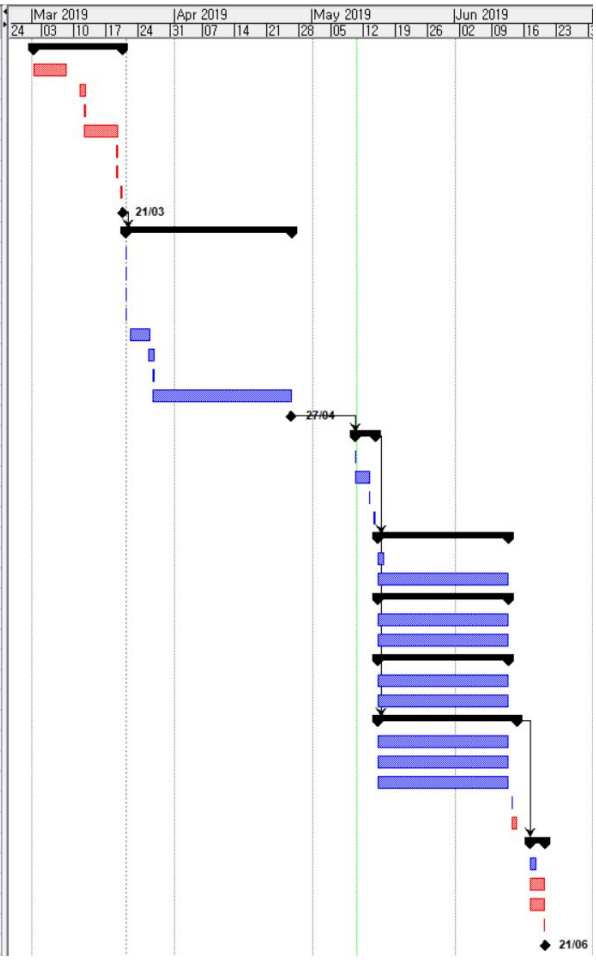
1.2 Project Planning
1.2.1 Develop Work Breakdown Structure
1.2.2 Identify major project milestones & delivery dates
1.2.3 Identify AUT assessment deliverables & dates
1.2.4 Identify any internal/external dependencies
1.2.5 Perform Skills Analysis
1.2.5.1 Identify team members' technical and personal capabilities
1.2.5.2 Plan time / method to fill required skill gaps
1.2.6 Develop Resource Plan
1.2.6.1 Identify costs for required resources
1.2.6.2 Estimate team working hours
1.2.7 Develop Communication Plan

1.3 Project Execution
1.3.1 Project process meeting
1.3.1.1 Create To do lists from requirements gathered
1.3.1.2 Define definition of ‘done’ for sprint
1.3.2 Build deliverables from To do list
1.3.3 Test deliverables
1.3.3.1 Perform unit tests
1.3.3.2 Perform acceptance tests
1.3.4 Monitoring & Control
1.3.4.1 Team Stand-up meetings
1.3.4.2 Update Kanban board

1.4 Project Monitoring
1.4.1 Create work performance logs & reports
1.4.2 Deliverables are accepted by client
1.4.3 Create testing reports
1.4.4 Update product backlog and record progress
1.4.5 Perform usability testing in real-world settings

1.5 Project Closure
1.5.1 Deliver final product
1.5.1.1 Release documentation for product
1.5.1.2 Client signs off project
1.5.2 Write Product Evaluation Report
1.5.3 Write Reflective Report
1.5.4 Get Feedback from client and moderator
1.5.5 Project Closure

	Name	Start	Finish
1	**Project Initiation**	**1/03/19 8:00 AM**	**20/03/19 5:00 PM**
2	Kick-off meeting with client & project moderator	1/03/19 8:00 AM	8/03/19 5:00 PM
3	Establish project definition	11/03/19 8:00 AM	12/03/19 5:00 PM
4	Define project organization	12/03/19 8:00 AM	12/03/19 5:00 PM
5	Develop scope & objectives document	12/03/19 8:00 AM	19/03/19 5:00 PM
6	Decide on a development approach with justification	19/03/19 8:00 AM	19/03/19 5:00 PM
7	Develop risk register document	19/03/19 8:00 AM	19/03/19 5:00 PM
8	Establish Project Charter	20/03/19 8:00 AM	20/03/19 5:00 PM
9	Approval to Proceed	20/03/19 5:00 PM	20/03/19 5:00 PM
10	**Project Planning & Upskilling**	**21/03/19 8:00 AM**	**26/04/19 5:00 PM**
11	Develop Work Breakdown Structure	21/03/19 8:00 AM	21/03/19 5:00 PM
12	Identify any internal/external dependencies	21/03/19 8:00 AM	21/03/19 5:00 PM
13	Identify AUT assessment deliverables & dates	21/03/19 8:00 AM	21/03/19 5:00 PM
14	Identify major project milestones & delivery dates	21/03/19 8:00 AM	21/03/19 5:00 PM
15	Perform Skills Analysis	22/03/19 8:00 AM	26/03/19 5:00 PM
16	Develop Resource Plan	26/03/19 8:00 AM	27/03/19 5:00 PM
17	Develop Communication Plan	27/03/19 8:00 AM	27/03/19 5:00 PM
18	Upskilling	27/03/19 8:00 AM	26/04/19 5:00 PM
19	Project Changed	26/04/19 8:00 AM	26/04/19 5:00 PM
20	**Project Change Management**	**10/05/19 8:00 AM**	**14/05/19 5:00 PM**
21	Define New Project Requirements	10/05/19 8:00 AM	10/05/19 5:00 PM
22	Process Change Management	10/05/19 8:00 AM	13/05/19 5:00 PM
23	Establish New Project Proposal	13/05/19 8:00 AM	13/05/19 5:00 PM
24	Establish New Development Plan	14/05/19 8:00 AM	14/05/19 5:00 PM
25	**Project Execution**	**15/05/19 8:00 AM**	**12/06/19 5:00 PM**
26	Project process meeting	15/05/19 8:00 AM	16/05/19 5:00 PM
27	Build deliverables from To do list	15/05/19 8:00 AM	12/06/19 5:00 PM
28	**Monitoring & Control**	**15/05/19 8:00 AM**	**12/06/19 5:00 PM**
29	Team Stand-up meetings	15/05/19 8:00 AM	12/06/19 5:00 PM
30	Update Kanban board	15/05/19 8:00 AM	12/06/19 5:00 PM
31	**Test deliverables**	**15/05/19 8:00 AM**	**12/06/19 5:00 PM**
32	Perform acceptance tests	15/05/19 8:00 AM	12/06/19 5:00 PM
33	Perform unit tests	15/05/19 8:00 AM	12/06/19 5:00 PM
34	**Project Monitoring**	**15/05/19 8:00 AM**	**14/06/19 5:00 PM**
35	Create testing reports	15/05/19 8:00 AM	12/06/19 5:00 PM
36	Create work performance logs & reports	15/05/19 8:00 AM	12/06/19 5:00 PM
37	Update Kanban board and record progress	15/05/19 8:00 AM	12/06/19 5:00 PM
38	Deliverables are accepted by client	13/06/19 8:00 AM	13/06/19 5:00 PM
39	Perform usability testing in real-world settings	13/06/19 8:00 AM	14/06/19 5:00 PM
40	**Project Closure**	**17/06/19 8:00 AM**	**20/06/19 5:00 PM**
41	Deliver final product	17/06/19 8:00 AM	18/06/19 5:00 PM
42	Write Product Evaluation Report	17/06/19 8:00 AM	20/06/19 5:00 PM
43	Write Reflective Report	17/06/19 8:00 AM	20/06/19 5:00 PM
44	Get Feedback from client and moderator	20/06/19 8:00 AM	20/06/19 5:00 PM
45	Project Closure	20/06/19 5:00 PM	20/06/19 5:00 PM



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