January 28, 2019

Dr. Craig Scratchley
School of Engineering Science
Simon Fraser University
Burnaby, British Columbia, V5A 1S6

Re: ENSC 405W/440W Project Proposal for a Minute Taker Device

Dear Dr. Scratchley,

In the attached document, you will find the *Proposal for an Autonomous Minute Taking Device* **MeetAssist** as our Capstone Engineering Science Project. The aim of this capstone project is to create an AI-powered minute taking device that will capture meeting minutes, resolve the problem of identifying the speaker and provide a web application interface that creates a wholesome user experience with analytics and reports.

This proposal's purpose is to overview the product, the design strategy, financial sources and budgets, and project scheduling. The document will continue to expand on the competitive edge of this product on the current market and its potential business prospects.

Lazy Tech consists of five final-year engineering students each with industry experience and specializing in various concentration from Electronic Engineering, Computer Engineering, to System Engineering: Vanshaj Koshar, Sarthak Sook, Arghavan Nassiri, Yagnik Vadher and Rafiul Islam. Should you have any questions regarding our project proposal, please contact our Chief Communication Officer at anassiri@sfu.ca.

Sincerely,

Yagnik Vadher
Chief Executive Officer
Lazy Tech

Enclosure: *Proposal for an Autonomous Minute Taking Device*


# Project Proposal

## MeetAssist

Meetings Evolved

Project Members

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Submitted To

Dr. Craig Scratchley (ENSC 405)
Dr. Andrew Rawicz (ENSC 440)
School of Engineering Science
Simon Fraser University

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Revision

1.0

# Executive Summary

Since the inception of organizations, meetings have held a high significance in decision making and altering the direction of an organization's future. In the modern enterprise world, companies incorporate various strategies to make their meetings productive, however, the pain of inefficiencies still remains today. According to the National Statistics Council, 37% of an employee's time is spent in meetings which 47% of employees consider a waste of time [1]. The sudden change of discussions, having no order of determining the next speaker, lack of note taking and not recalling the conclusions of the meetings are only some of the reasons behind fruitless meetings.

Lazy Tech's MeetAssist aims to address the problems above and to increase productivity in meetings by taking detailed notes, identifying the next speaker in the meeting, providing a summary of the meeting as well as analytics. Our product provides enterprises with the opportunity to not only improve the quality of their meetings but to have a sense of understanding of where their meeting productivity is heading towards. Businesses who put emphasis on making key decisions in their meetings can benefit from the coherency and the analytics that MeetAssist provides them on a web application software.

While our competition delivers similar feature offerings in their minute taking products, they fail to provide a centralized web application interface that provides meeting summaries as well as analytics on team engagement and interactivity. They lack a comprehensive design that puts all elements of note taking, summarization, speaker identification and analytics together.

With the competition's shortcomings, Lazy Tech has the opportunity to initially produce a low-volume number of devices with high margins of profit and funnel the liquid assets towards research and development to develop an upgraded prototype. The vision is to mass produce the upgraded device and sell it with lower margins thus increasing affordability for the public while increasing revenue. Lazy Tech will adhere to a business model that is aligned with the market's conditions in accordance with our market research, keeping a steady revenue and avoiding unicorn startup company practices.

We have founded our business based on a friendly partnership that creates not only a gratifying atmosphere for learning but for constructive feedback that urges us to become skilled engineers. With that in mind, Lazy Tech provides this proposal to describe the details of the product, the strategy behind design and implementation, budgeting plans and finances, market research and product competitiveness, as well as managing project scope, timeline and expectations.

LAZY TECH

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## Glossary of Acronyms

| | |
|---|---|
| CEO | Chief Executive Officer |
| BLE | Bluetooth low energy |
| IoT | Internet of Things |
| SSL | Single Socket Layer |
| API | Application Programming Interface |
| OS | Operating System |
| OWASP | Open Web Application Security Project |
| IEEE | Institute of Electrical and Electronics Engineers |
| ESSS | SFU Engineering Science Student Society |

# 1. Introduction

The central theme of today's technological advancement is undoubtedly artificial intelligence. With tools like machine learning, AI has started to solve complex problems. With that being said, there is yet many problems that need to be solved. In this proposal, key problems in the meetings are aimed to be solved with the help of a smart hardware and AI. Lazy Tech aims to deliver a product that changes the way meetings are organized by making meetings productive, efficient and collaborative.

Currently, meetings do not have automation for taking meeting minutes or notes. In result, individuals spend the time to write down notes or meeting minutes which reduces focus on the meeting, decreases productivity and is not efficient. By using Lazy Tech's product meetAssist, individuals do not have to worry anymore for taking meeting minutes or notes. Simply by using meetAssist, the user will be able to record a meeting, get an automatic summary of the meeting, and meeting analytics. This revolutionary product will create automated meeting minutes and analytics so that the user can focus on what is important to them. With continuous improvements, meetAssist will be able to transform how the meetings are organized by making them more efficient and productive.

The purpose of this proposal is to give a high-level overview of our product and prototype. It also discusses the scope of the project and proposed solution. In section 3, risk and mitigation are described in detail. It also highlights the benefits of using this product. Additionally, a comprehensive analysis of the market and possible competition is provided. In section 4, estimated cost with each vendor is listed for funding. Lastly, Section 5 provides a schedule at which each stage of the project will be completed.

# 2. Project Overview

## 2.1 Background

Verbal communication is a major component whenever two parties interact, whether it is to share information, to make decisions, or to create solutions. At the workplace, discussions held within meetings are documented and this documentation is referred to as "meeting minutes". The participants depend on the meeting minutes to clarify and revise what was discussed. Meeting minutes can also serve as a historical document. They may be used to inform those who were not present at particular meetings of what transpired. Having all the meeting minutes archived allows members to review past company decisions, providing explanations as to why specific decisions were made.

Meeting minutes are typically noted via laptops or tablets and is shared electronically among team members. It's format may vary, depending on the nature of the work. For example, in court hearings where legal proceedings are discussed, every word spoken along with the speaker must be transcribed verbatim. Whereas in typical business meetings, the importance of recording every detail is not as vital.

According to [2], the recorder of meeting minutes is typically responsible for documenting the following:

- members who showed up for meeting
- agenda items
- calendar or due dates
- actions or tasks
- main points
- decisions made by the members
- future decisions

It is crucial for the recorder to accurately document the team's decisions, commitments, and main discussion points made during the meeting. Details includes documenting the responsibilities, due dates, and commitments that the members are assigned. The recorder must be able to listen to speakers, interpret what they say, and summarize the vital points from their point of view. The following studies, [3][4] have stated that the main issue with documenting meeting minutes is that the speaker typically speaks too quickly for the recorder to accurately transcribe everything. Even with advancements in technology, it is clear that meeting minutes are still conducted in an outdated manner.

## 2.2 Scope

### 2.2.1 Project Goals

Meetings play vital roles in today's day and age. With that, meetings notes are very crucial in order to have an effective meeting. Based on research, it is been discovered that 71% of meetings are unproductive and inefficient [5]. 62% of people fail to bring people closer in meetings [5]. Therefore, our main goal for this project is to make meetings more efficient, productive and reliable in the result of making people's lives better. With our device and software, meetings will be recorded, analyzed and will output results to team members. We want to achieve recording audio from meetings with the speech diarization( knowing which person is speaking) and store in the cloud for analytics and feed it back to a team member or project manager. We aim to deliver meeting assistant kit which will have a hub which will record the audio of the meeting, do pre-

analysis and send data to the cloud. AI-powered data analytics will be applied on the data and end results will be given in modern web application platform.

Aside from hardware solution, we aim to provide high-quality software features not limited to meeting minutes but, also meeting productivity, team health status based on meetings interactivity, monthly report. The system will use next-generation AI and cloud technology to provide the most convenient experience.

Following are the main deliverables that we aim to accomplish.

1. Record meeting conversation audio
2. Detect individual person identity
3. Convert audio to text
4. Summarize meeting minutes
5. Web app for managing meeting minutes, edit meeting minutes and send it to attendees

### 2.2.2 Proposed Solutions

Goals mentioned earlier are intended to be achieved using the proposed solution as shown in fig 2.2.1. We are directing this solution in 3 major parts which are clip, hub and web portal. The clip being small BLE(Bluetooth low energy) enabled device which can be worn on the shirt collar. It is directed to record high-quality audio and transmit data to hub via BLE(Bluetooth low energy). The hub acts as a central communication medium that communicate with clips and cloud. Cloud stores audio recording and does the analysis for speech to text and summarizing. Web app which is third component of our solution, is focused to make seamless user experience with editing meeting minutes, access meeting analytics and other features. The data would be processed and analyzed within the cloud. The use meeting minutes will be both easily and immediately accessible through our web platform.

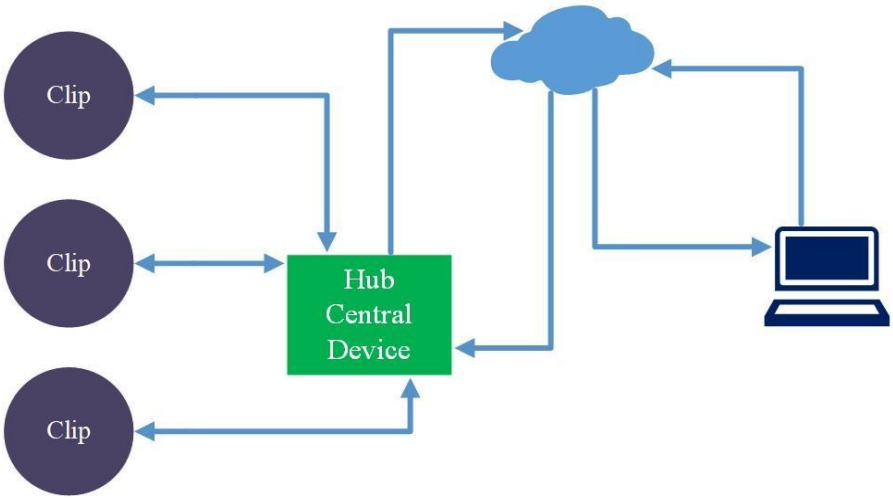


*Figure 2.1 Solution overview*

Following is the anticipated design for the product which includes Hub and Clip.


*Figure 2.2 Proposed Hub design on left and clip design on right*

### 2.2.3 Alternate solution

In terms of an alternate solution, we will have freedom in designing web platform features not limited to meeting minutes but also meeting assistance by giving a queuing option for users to speak up, thus eliminating conflicts, advanced analytics for better productivity. Also, the central hub could alternate design based on the clip design, not just as an acting communication medium but could also act as a central recorder. If we could achieve accuracy with the central hub then our design will remove the clip portion all together which will make it more convenient for the user.

# 3. Justification of Approach

## 3.1 Benefits

The proposed products promise to deliver several benefits to its stakeholders and end users which outweigh the mentioned risks, thereby justifying its production and use. Products benefits are as follows :

1. Automated meeting minutes
    - The meeting will be transcribed and summarized.
    - A person would be able to do a final edit and then send it to each attendee.
    - Each attendee will have access to the detailed notes.
2. Convenient digital notes

- MeetAssist will record audio of the meetings and store them, helping users to recreate virtual meeting.
- Text based notes will also be stored in order to give users the freedom to search through specific meeting topics.

3. Meeting analytics
    - The user will receive meeting analytics including meeting sentiment analysis, attendees participation, time spent on each topic, etc.
4. Team health status
    - As meetings become larger, opinions become diverse. Therefore, based on the meeting sentiment analysis, user will be able to find out team health status meaning efficiency of meeting compared to past meetings, team engagement and team interaction flow.

## 3.2 Risks

When implementing any sort of combined software-hardware technology, certain risks are given, especially, when your product is built to be used by high end firms and organizations such as financial institutions and banks. We understand these risks and have consulted with security specialists [6] to identify these potential risks and address them as listed below:

### 3.2.1 Hardware

- An IoT device, first and foremost is connected to multiple layers of a network. From the device to the router to the cloud, each layer must provide adequate security standards that ensure the client's data is securely transferred. Measures such as device identity management, access control and encryption would ensure each layer is secure. Furthermore, the API that communicates with the back-end will require a strong security key.
- Today's processors need to be on-par with security requirements by having a secure operating system (OS), boot, storage and identity [7]. We intend to use systems that possess modern chips that are up-to-date with latest security measures.
- A hardware device that has a microphone as its audio input needs to have a secured compartmentalization that is tamper-proof such that no bugs can be implemented within the device. We will consider such a scenario in our design.

### 3.2.2 Software

- Data itself is a huge topic of discussion in the security field, especially when stored in its raw format. Nowadays companies that gather and collect personal data spend their valuable resources on research, development and implementation of encryptions

methods. Take Equifax's disastrous breach for example [8]. Had their stored data been encrypted, perhaps they could have avoided loss of 400 million users' data. We will ensure that our software design consists of end-to-end encryption and the usage of secured cryptographic algorithms.

- Any IoT device when used for a long period of time requires security updates. While this is not a requirement during the development phase of our product, we do acknowledge the risks associated with having a software system that relies on regular updates by installing security patches.
- Our product package further offers web application services. As with any web application services, there are a multitude of security factors to consider. From user's password protection, second factor authentication to more serious requirements such as the Open Web Application Security Project (OWASP) top ten risks, we have considered them all. Risks such as injection, broken authentication, sensitive data exposure and etc. are serious and our team will address the risks by code adjustments in the software and common encryption methods.

## 3.3 Market Research

Meetings are vital for an organization and taking meeting minutes is an essential component to it. It is considered extremely valuable in terms of communication providing a mechanism to craft strategic plans and discuss potential challenges and opportunities impacting their business. Meeting members brainstorm and gather ideas which generate employee involvement [9]. It serves as a very useful resource for members who could not attend the meeting and wants to be filled in as to what was decided or to discuss action items as a reminder for the team to work on the required tasks and divide their priority of work as necessary. Meeting minutes are the only evidence of what was decided and how it will be implemented.

Taking meeting minutes is a key skill that requires the person to be an active listener and being attentive throughout to understand the goals and actions being discussed and be able to summarize the important findings. It is not something that can be written with speed otherwise it can result in missing out some key points discussed which would then not be summarized properly [3]. To reduce this uncertainty and eliminate this long-drawn-out process, our company has designed a device "meetAssist" that would record meeting minutes which will be transcribed to text on the cloud and will provide meeting summaries, the health status of the team and generate task reports. This would save time and energy of the meeting attendees and boost their concentration and focus during the meeting.

### 3.3.1 Meeting Trend of Companies

Meetings are meant to be an efficient way to discuss ideas, issues and barriers at work but most of them end up being unproductive which could be due to no follow up on tasks, poor communication, no minutes and lack of participant preparation. In fact, 67% of the meetings are considered to be failures by executives.


*Figure 3.1 : Causes of Unproductive Meetings [10]*

From the figure above we can see that multitasking during meetings is one of the biggest contributors for unproductive meetings. 69% of the people are busy checking emails and 49% of them are responding to other unrelated work. Remote participants in the meeting tend not to pay too much attention as to what is being discussed and lose their focus [10]. There is a lack of planning and structure for the whole meeting process that needs to be carried very diligently.


*Figure 3.2: Impact of Unproductive Meetings [10]*

Unproductive meetings are very harmful for an organization as it wastes a tremendous amount of money and about 15% of the collective organizations time as described in the figure above. This is very dangerous for managers as they invest about 35% of their time in meetings while the upper management is even more involved spending 50% of their time in meetings [10]. All this time and money can be put into good use if resources are used effectively and wisely.

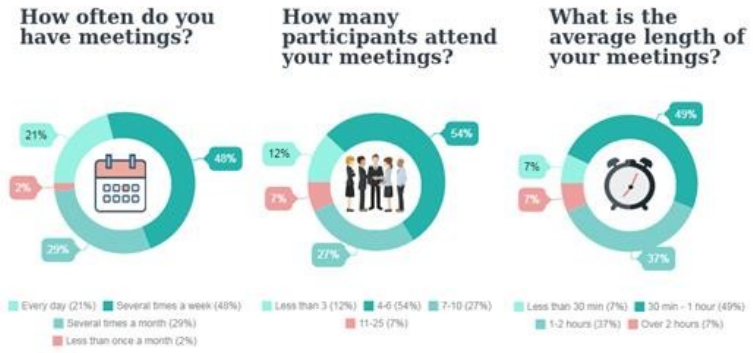


*Figure 3.3: Meeting regularities, participants and duration [11]*

People spend approximately 50% of their time in meetings during a week which generally consists of 4-6 participants and 50% of the time the meetings span from 30 min – 1 hour long. On a daily basis, people spend 21% of their time in meetings which could anywhere between 30 min – 2 hours long [11].

That is a lot of meetings and less work. Time is not being managed appropriately since the meetings are not been summarized to members and no reminders are passed onto for the completion of required tasks. Our product promises to deliver follow-up on tasks and easily

accessible meeting minutes with a summary that should help managers maximize results by implementing best meeting practices.

### 3.3.2 Current Competition

There are many applications in the market that provides a note/summary taking software solution but the two biggest competitors in the market that can challenge our product are Reason8 and Otter.

**Reason8.ai**

Reason8 software is used to record in-person meetings. Each participant of the meeting needs to install the application on their phone (Android & IOS) and requires two or more members for its functioning. It records the meeting and provides the transcription on its website where it automatically lists any tasks to be done and summarizes key points. It uses deep learning model that can identify multiple speakers within a transcript. This product is targeted for middle managers who attend 3-4 meetings per day. They currently lack the facility to provide for wider enterprise market as they do not provide the private cloud or analytics [12].

**Otter.ai**

Otter is an application that records in-person meetings. It only needs to be set up on one device (IOS, Android, Web) where it uses voice recognition algorithm to differentiate between speakers and is designed to understand and capture long conversations such as meetings, interviews, lectures etc. within multiple people. Voice conversations are available for playback with audio synced with the transcribed text which means words show up on the screen as they are been spoken [13].

### 3.3.3 Target Audience

Our primary audience for this product would be small to large sized companies that would place this device in their meeting rooms. Later, we would market this to journalists for recording their interviews and universities to keep track of their lectures. The least digitized field in personal communication is In-person meetings. All organizations and companies have meetings where they make meeting notes and write meeting summaries. There is a huge market demand for this product. Our competitors use a software-based solution only while our product is both hardware and software integrated. This integration makes our company unique and stands out amongst many others in the market.

## 3.4 Cost Estimation

A preliminary costs list is included in the table below. As discussed earlier, scope of this project is scalable therefore 25% contingency "cost" has been added.

| Item | Vendor | Cost | Quantity | Total |
|---|---|---|---|---|
| Raspberry pi 3 B + | DigiKey | 62 | 1 | 62 |
| Microphone | DigiKey | 11 | 4 | 44 |
| BGM 111 Bluetooth low energy | Silicon Labs | 12 | 2 | 24 |
| BLE development kit | Silicon Labs | 160 | 1 | 160 |
| Raspberry pi development kit (Resistors, connectors, etc.) | DigiKey | 40 | 1 | 40 |
| Coin Cell battery holder | DigiKey | 2 | 2 | 4 |
| Coin Cell battery | DigiKey | 3 | 5 | 15 |
| AWS cloud | Amazon | 10 | 1 | 10 |
| PCB manufacturing | | 40 | 2 | 80 |
| 3D printing | | ~50 | 2 | 100 |
| Contingency | | 25% | | 134 |
| Total | | | | 673 |

*Table 3.1 : Estimated costs for components to be used in the project*

Above costs are estimated for our product but it is subject to change based on unforeseen price changes.

# 4. Logistics

## 4.1 Funding

Funding for MeetAssist will be derived from various sources. The Primary candidates for funding are Wighton Engineering Development Fund, IEEE Canadian Foundation, ESSS - Engineering Science Student Endowment Fund. Some of the Funding organizations require criteria to be met and we believe that our product will meet those criteria since it is a device which would meet all the practical aspects of a product and will improve human interaction thus improving the society as a whole.Apart from these organizations and funding sources, we will reach out to companies who are interested in our device.

To save costs the company would borrow equipment from the ESSS parts library, and re-use equipment used in previous projects by the group members. There is a possibility that the project budget might exceed the estimated costs or the funding received is not sufficient to cover all the costs of the project. In that case, each member of the group will contribute equally to cover the remaining cost of the project.

## 4.2 Timeline

The Following chart shows the Important Deadline which are scheduled to be completed on dates indicated in the chart.

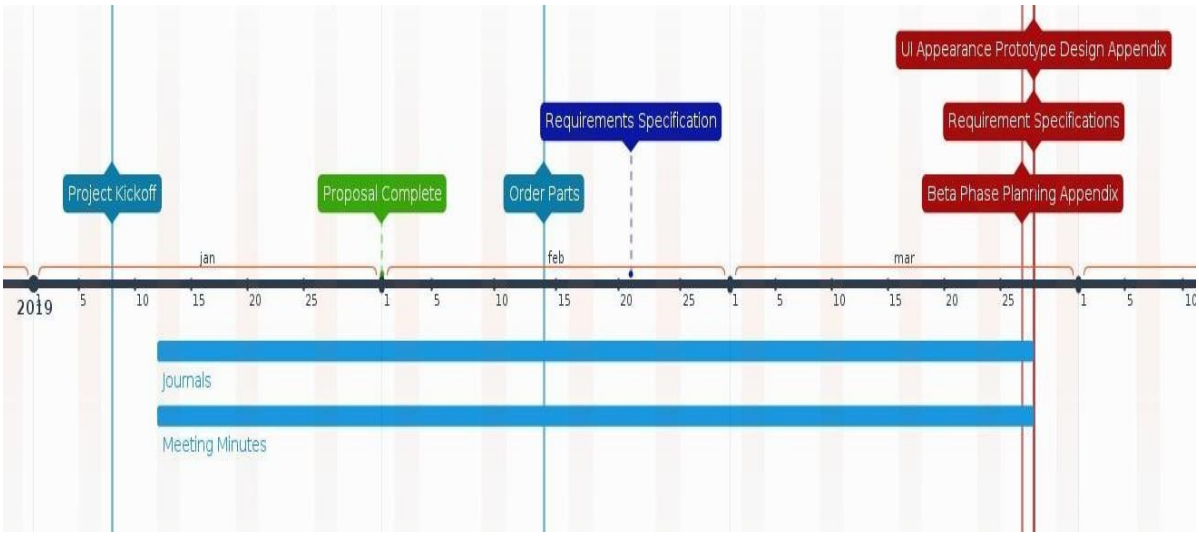


*Figure 4.1 : Simplified Timeline with important dates*

## 4.3 Gantt Chart

Below is the detailed chart which showcases our proposed timeline for the alpha phase of the project. This includes the Documentation phase, Hardware assembly and Software Development.

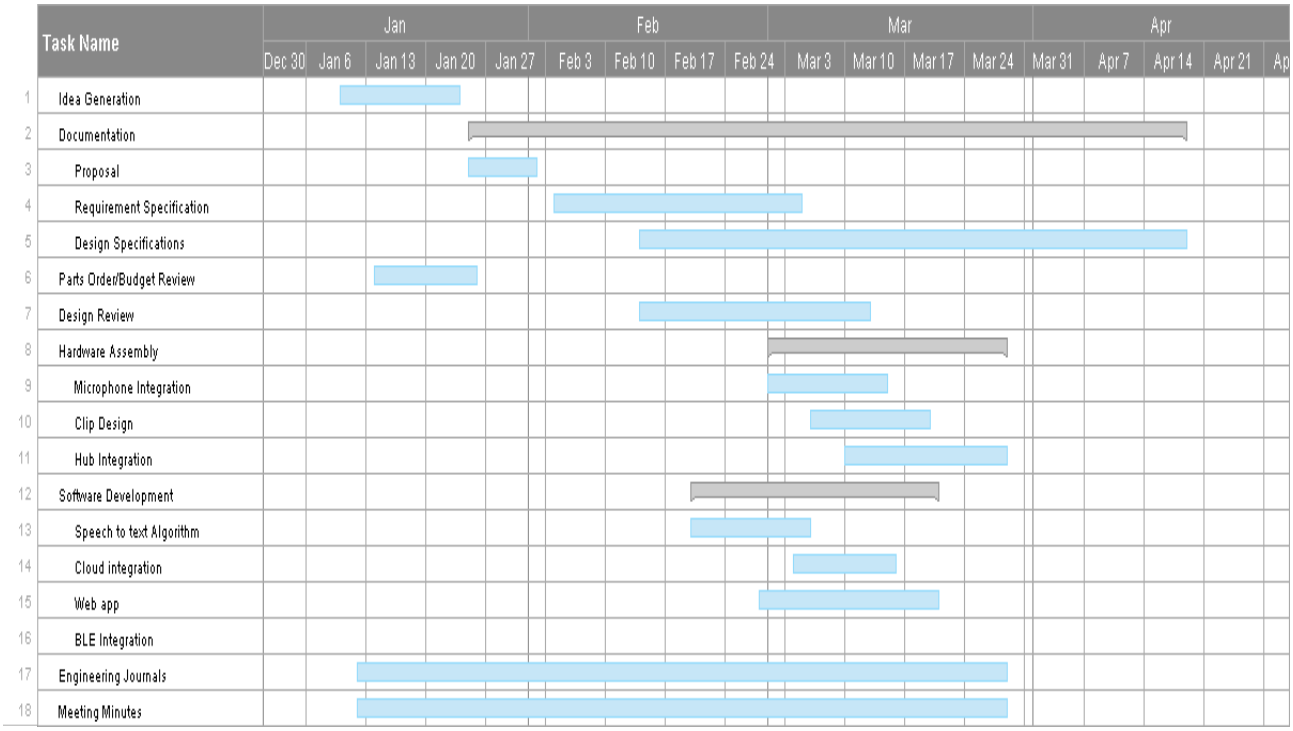


*Figure 4.2: Gantt chart showing detailed overview of project dates and deadlines*

# 5. Company Overview

## 5.1 Organization

MeetAssist provides enterprise meeting solutions that increase company productivity, focus and collaboration. The team behind MeetAssist is comprised of 5 final year Engineering students who have organized into two sub-teams to tackle hardware and software components of the product. The software team will be comprised of our CEO, Yagnik and our CCO, Asal who will develop our web application, cloud and hub software. The hardware team will be comprised of Vanshaj, Sarthak and Rafiul who will work together to integrate hardware components of the hub and the clip and ensure successful connection of the two. The hardware team lead, Vansh, will further put efforts towards ensuring that data is smoothly transmitted for software processing in collaboration with software team lead, Yagnik.

## 5.2 Structure

Lazy Tech is an enterprise founded upon a general partnership between its founding members. This means all responsibilities, liabilities, losses and profits will be shared among the members who will make decisions in a mutual manner. In case of significant decision making, a system of voting will ensure that the board makes intelligent resolutions by a vote of the majority. Should any concerns be raised by a board member, the team will hold a meeting where the CEO will make the final call in good faith.

## 5.3 Members

**Yagnik Vadher - Computer Engineer (CEO)**

Yagnik is an avid computer engineering student with a passion for embedded systems. Yagnik develops software and hardware systems. With co-op work experience in both IoT firmware projects and backend system software, he has developed a great software background. Yagnik has also worked with machine learning, circuit design, SolidWorks and has diverse experience in product design. Yagnik aims to deliver impactful product to the community, making their lives better.

**Rafiul Islam- Systems Engineer (COO)**

Rafiul is a fifth year Systems Engineering student at Simon Fraser University. Previously, he had worked for Hydra-fab Fluid Power Inc as a Systems Engineer. Where he had dealt with the integration of systems comprised of microcontrollers, sensors, actuators, data acquisition systems and human interface machines. He is also skilled in Matlab, C++ and VHDL.

**Asal Nasiri - System Engineer (CCO)**

Asal is a fourth year Systems Engineering student with strong robotics skills and experience in software security. She did her internship at PNI Media as a security analyst where she investigated security flaws in large scale web applications and mitigated the risks of data breaches and cyber attacks. Asal's strengths are in her ability to bring software and hardware together while applying her project management skills to steer projects in the right direction.

**Sarthak Sood - Electronics engineer (CMO)**

Sathak is passionate electronics engineer with a strong foundation in IT security and network communication. Sarthak has done previous work as a Security analyst where he has developed networking knowledge, testing frameworks and automation software. Sarthak holds impressive marketing knowledge and the passion for delivering the right product to market.

**Vanshaj Kochar - Electronics Engineer (CTO)**

Vanshaj is a fifth-year Electronics Engineering student. Having previously worked in Blackberry QNX as an Embedded Software Engineer and SAP as an Agile Developer he has developed a solid foundation in programming for embedded systems and software applications. He is meticulous and believes in teamwork. Vanshaj aims to help the team in development, testing and integration of the product as well as produce quality documentation for the same.

# 6. Conclusion

MeetAssist provides a medium for storing verbal communication exchanged in a meeting by using speech to text AI in sync with speech differentiating microphone. This product provides a method for formatting and analyzing data which could be documented for the purpose of checking the productivity of a meeting. Through the use of a microphone component MeetAssist will differentiate between speakers in a meeting which could be vital in segregating meeting objectives once the meeting has been conducted. Our web app will offer the customer an elegant means to edit and manage their data. For the prototype, we have estimated our costs taking into account all the components which will be utilized for the project and ensured quality is not compromised. Through our market research, we have identified our competitors none of which have the accuracy or the versatility our product will offer. We plan to Fund our project by applying to Funds eligible to engineering students and reuse parts from ESSS parts library to budget our expenditure. The timeline has been planned to give each member of LazyTech adequate time to complete their task and ensure the prototype is completed with all quality checks before the deadline.

# 7. References

[1] Fast Company. (2019). *How 12 Companies Make Meetings Memorable, Effective, And Short*. [online] Available at: https://www.fastcompany.com/3048815/how-12-companies-make-meetings-memorable-effective-and-short [Accessed 2 Feb. 2019].

[2] BeesApps - The To-Do Application to boost your business productivity. (2019). *9 Steps To Learn How To Write Meeting Minutes and Share Them*. [online] Available at: https://www.beesapps.com/en/blog/9-steps-to-learn-how-to-write-meeting-minutes/ [Accessed 2 Feb. 2019].

[3] J. Gutmann, *Taking minutes of meetings*, 2nd ed. London, 2006, p. 1.

[4] J. Gutmann, *Taking minutes of meetings*, 4th ed. 2016, p. 2.

[5]"Stop the Meeting Madness", *Harvard Business Review*, 2017. [Online]. Available: https://hbr.org/2017/07/stop-the-meeting-madness. [Accessed: 04- Feb- 2019].

[6] Steve Overland, *CyberSecurity Manager*, personal communication, January 28, 2019.

[7] "Why hardware security is critical for IoT", *TechRepublic*, 2018. [Online]. Available: https://www.techrepublic.com/article/why-hardware-security-is-critical-for-iot/. [Accessed: 04- Feb- 2019].

[8]"Equifax ex-CEO: Hacked data wasn't encrypted", *Cbsnews.com*, 2018. [Online]. Available: https://www.cbsnews.com/news/equifax-ex-ceo-hacked-data-wasnt-encrypted/. [Accessed: 04- Feb- 2019].

[9] "The Science and Fiction of Meetings", *MIT Sloan Management Review*, 2016. [Online]. Available: https://sloanreview.mit.edu/article/the-science-and-fiction-of-meetings/. [Accessed: 04- Feb- 2019].

[10]"How Much Time Do We Spend in Meetings? (Hint: It's Scary)", *Themuse.com*, 2019. [Online]. Available: https://www.themuse.com/advice/how-much-time-do-we-spend-in-meetings-hint-its-scary. [Accessed: 04- Feb- 2019].

[11]L. Turmel and L. Turmel, "Statistics - The Results 2017- Current state of meetings at work | Beenote", *Beenote*, 2017. [Online]. Available: https://www.beenote.io/en/state-of-meetings-at-work-the-results/. [Accessed: 04- Feb- 2019].

[12]"Reason8 is an AI assistant for managers and meetings", *TechCrunch*, 2018. [Online]. Available: https://techcrunch.com/2017/12/04/auroom-is-an-ai-assistant-for-managers-and-meetings/. [Accessed: 04- Feb- 2019].

 

[13]"Otter’s new app lets you record, transcribe, search and share your voice conversations", *TechCrunch*, 2019. [Online]. Available: https://techcrunch.com/2018/02/26/otters-new-app-lets-you-record-transcribe-search-and-share-your-voice-conversations/. [Accessed: 04- Feb- 2019].