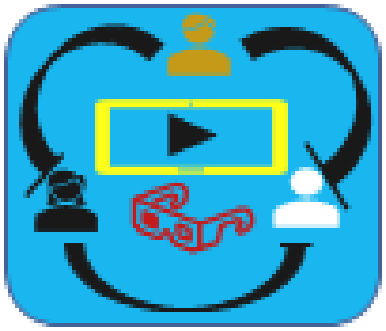
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

THE UNIVERSITY OF TEXAS AT ARLINGTON

PROJECT CHARTER

CSE 4316: SENIOR DESIGN I

SUMMER 2021



Team Name: THE STREAMERS

Product Name:SWaP - Social Watch Party

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REVISION HISTORY

Revision	Date	Authors(s)	Description
0.1	07.08.2021	MP,SS,LM,SS,SD,RJ	Document creation

CONTENTS

1 PROBLEM STATEMENT

We have been using streaming apps like Netflix, Youtube, Hulu, etc. to watch movies or different social videos. We usually watch the videos with our family or friends together physically but what if we want to watch it with our friends or family who are not together physically at that moment. The design of the project is going to help people connect together online and stream videos together including chatting at the same time but all virtually, anywhere in the world.

2 METHODOLOGY

We are going to build a mobile app that allows people from anywhere in the world to connect together to stream social videos using this app. Any user of this app will be allowed to add their friends in their profile, and start a watch party where everyone invited to watch will be able to watch the video at the same time. The app will have features like video and audio calling as well as chatting with the connected friends while watching the video together to make it more interactive and entertaining. There will be one user as a host that starts the streaming and that user will be provided with function to cancel the streaming, pause the video, play the video, mute the other users audio and video, and that user will also have function to either allow everyone in the group or not to be able to pause the video. So the main motive of doing this senior design project is to create an app that allows people to create a group and stream social videos online, where they can chat or share audio and video within themselves while streaming the videos.

3 VALUE PROPOSITION

We currently do not have any outside sponsors and our only sponsor is the Computer Science Department of UTA.

4 DEVELOPMENT MILESTONES

Project Charter first draft - July 9, 2021

System Requirements Specification - July 2021

Architectural Design Specification - August 2021

Demonstration of <feature or implementation milestone> - Month Year

Detailed Design Specification - Month Year

Demonstration of <feature or implementation milestone> - Month Year

Demonstration of <feature or implementation milestone> - Month Year

CoE Innovation Day poster presentation - Month Year

Demonstration of <feature or implementation milestone> - Month Year

Demonstration of <feature or implementation milestone> - Month Year

Demonstration of <feature or implementation milestone> - Month Year

Final Project Demonstration -December 2021

5 BACKGROUND

This app will allow users to watch movies and videos together. Through this app users will be able to chat, share audio and video within themselves as they watch the videos together. Due to covid or many other situations, people might not be able to have movie nights, watch videos and movies together or go to the theatre. But how fun it would be to stream the videos from different places of the world at the same time. Also to make it feel like being in the same place at the same time, using this app the users will be able to communicate on the video, through comments, call and video chat as the video streaming continues.This app could work great to connect people from any corner of the world with the internet to stream videos together. They can have conversations watching the video like they can do in person. As of now we do not have a sponsor, but we as a team would like to work on this project because it would be something interesting to work on. We would like to work on this project to expand our knowledge on how to connect people to stream videos together. By allowing various functions such as getting control of pause/play the video, mute, restart to message, chat, video talk, send gifs, this app could make a great watch party. The users within the app will be able to meet new users with similar interests and make groups related to their interest to watch the videos of their interest. A single user could be a member of multiple groups. So this way, users can connect with the people they already know as well as new people to stream the videos together.

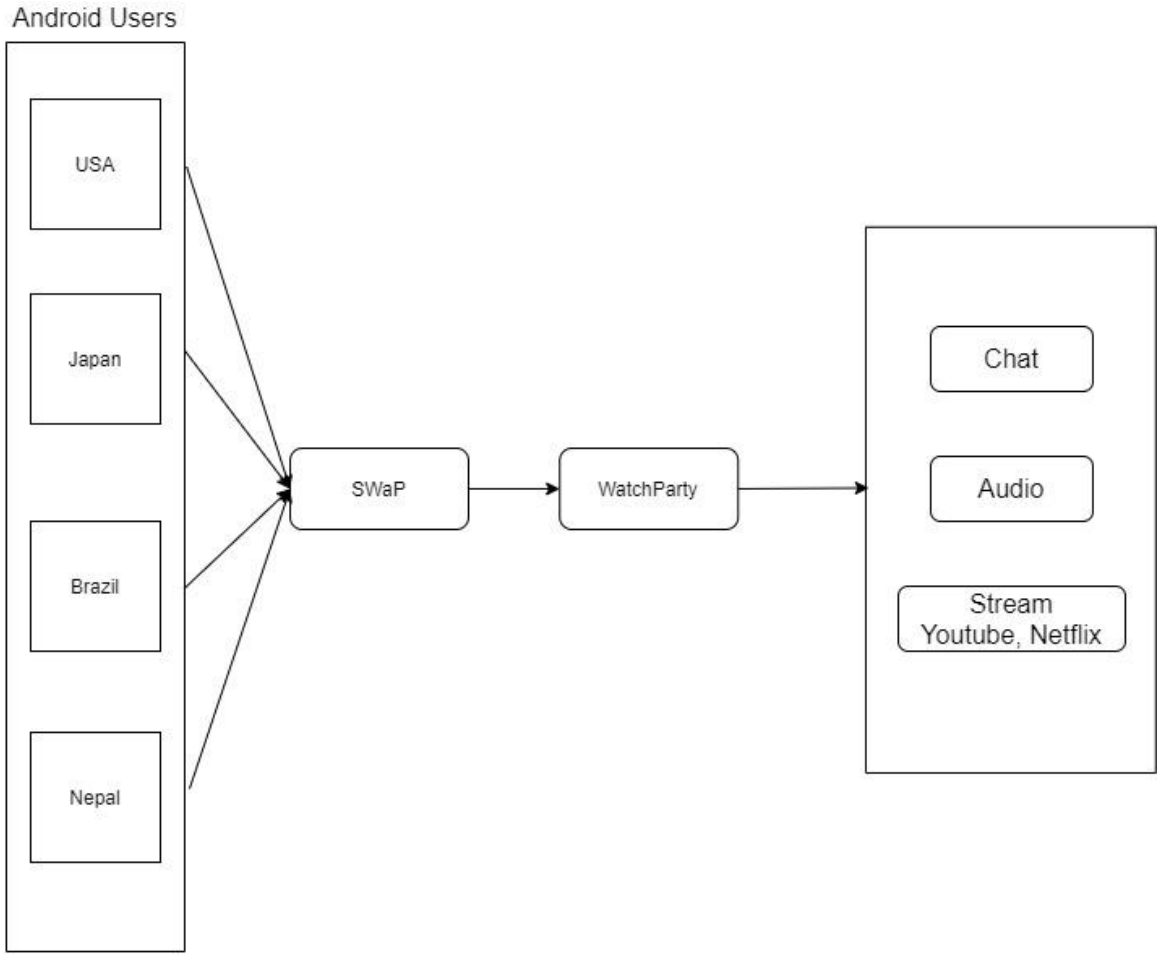
6 RELATED WORK

There are many existing video streaming apps such as Netflix, Hulu, HBO, Amazon Prime Video, Peacock Tv and many others. In these streaming apps, multiple users can stream videos or movies at the same time but there are no such functionalities within the app from which the users will be able to stream it in the one browser. Users cannot interact among each other in the existing apps. Users cannot comment or chat while watching the videos. But messenger has now

added a feature to it where people within the call can view shared videos during the call. But this feature has certain limitations to it. With the new messenger feature, in video calls up to eight people can share their screen whereas with messenger rooms feature, 50 people can share the video screen together without any time constraints. Video screens do not have limits on devices so can be shared on either web or desktop (Rayome, 2020). Another similar app would be Netflix. Netflix is a very popular video streaming app that can also be used from desktop, phone, or browser. Users can stream unlimited videos such as movies, series, documentaries, etc ("What is Netflix?....."). One different feature on Hulu is that users can use Hulu Live TV channels by using their zip code on Hulu's website. It also allows live TV service with networks such as ABC, NBC, etc (Restauro, 2021). Unlike other streaming services, Peacock Tv is a free app that gives its users unlimited access, with an ad-free plan. Peacock Tv is NBC Universal's new service with NBC channels comedy, drama, movies and much more (Spellberg, 2020). But the problems in these streaming services besides messenger is that users cannot call or video chat within the app while watching the videos. So, in our app, it can perform functions as these existing streaming services but it will also include live chats, live calls, live video calls, live comments and more.

7 SYSTEM OVERVIEW

Multiple android users from all over the world will be able open up SWaP and join WatchParty to watch videos simultaneously. In addition to that, users will also be able to chat and talk during the stream.



8 ROLES & RESPONSIBILITIES

The role of different members in this project are:

Manish Phuyal: Team Leader

I'll be responsible to guide the team as much as possible and lead towards the success of the project. I will communicate with all the members, make sure every member works smoothly, and manage a weekly meeting among members. And, I will be developing software along with the members.

Lahana Maharjan: UI Designer

My role and responsibility in this project will be to implement the different functionalities of the app into UI design and also writing codes. Along with that, working on the documentation of the project.

Rajkumar Jirel: Icon designer and Programmer

My responsibilities are to design the icon for this video app, write codes for setting menu and design different visual effects.

Subash Sunar: Project Designer and Programmer

My responsibilities are to design the different pages (like home screen page, option menu page, and communication page) that are included in the app and write code involved in creating those pages.

Subash Shahi: Scrum Master

Our project will be based on an agile development method, so I will take responsibility as a scrum master and facilitate agile principles. And, work in development of the software.

Subash Dahal: Programmer/Developer

My main responsibility will be to add features like add friends and let them chat while watching the video in our app.

9 COST PROPOSAL

This is a software project so we do not require purchasing any hardware or external tools during this project but we may require some expenses to buy software licenses or frameworks if only our application requires it during the development process.

10 FACILITIES & EQUIPMENT

For this project, we are going to use Android studio system software to develop the app. The Android studio free platform created by Google where we can develop apps, games and other software for free. For the programming part everyone is using their own laptop to code and design the app. We will be using the team application for communication and virtual team meetings through our project. We will not be purchasing any equipment during our project.

11 ASSUMPTIONS

The following list contains critical assumptions related to the implementation and testing of the project:

1. We will be able to stream a video at least with 2 people by 4 sprint cycle
2. At least 3 video platforms will be able to stream by group by 4.5 sprint cycle.
3. The app will be fully functional and able to download by 5th sprint cycle.

12 CONSTRAINTS

The following are the constraints regarding our project:

1. The application must be completed by the given due date.
2. Customers must be able to watch videos in groups without any errors
3. The application must be compatible on android devices.
4. All the required video streaming applications in requirement must be accessible through our app.

13 RISKS

The major risk in our app that we see in future will be security. It is an application where you have to login with some personal information and use some other application to stream videos together with a group. Some major critical risks related to our project are as below:

Risk description	Probability
Hacking of personal data	0.20
Connection problem	0.10
Compatibility with other application	0.15
Lagging of streaming	0.20

14 DOCUMENTATION & REPORTING

14.1 MAJOR DOCUMENTATION DELIVERABLES

Each member of the group is assigned with a specific task. Each member notifies the group about their progress and the team leader keeps the track of a project. Deliverables are done by all team members on their specific day. When the assigned task is completed, everything will be merged to make a complete project.

14.1.1 PROJECT CHARTER

The documentation part will be done together in a group and the coding will be put on GitHub. When a member completes a specific task, they will update it on GitHub. If there is any change, we will update immediately. The initial version will be delivered during the first week of August. The final version will be delivered during finals next semester.

14.1.2 SYSTEM REQUIREMENTS SPECIFICATION

The coding will be put on GitHub. When a member completes a specific task, they will update it on GitHub. If there is any change, we will update immediately. The initial version will be delivered during the first week of August. The final version will be delivered during finals next semester.

14.1.3 Architectural Design Specification

If the team finds a change or an update is required, we will immediately put it into effect. The initial version will be delivered during the first week of August. The final version will be delivered during finals next semester.

14.1.4 Detailed Design Specification

If any requirement is determined, detailed design specifications will be updated. The initial version will be delivered during the first week of August. The final version will be delivered during finals next semester.

14.2 Recurring Sprint Items

14.2.1 Product Backlog

Numbers are provided for each task in SRS . 1 will be done at first, 2 on second and so on. The time estimated for each task. We will try to finish each task within a given time, if not we have some lag time as well. The group makes the decision and Google Spreadsheet will be used to maintain and share the product backlog with team members and stakeholders.

14.2.2 Sprint Planning

The team leader takes care of sprint planning. He/she describes the goal or objective of the sprint, and we will plan accordingly. There will be about 7 sprints within two semesters of senior design course.

14.2.3 Sprint Goal

The team leader decides the sprint goal. He/she asks customers about what they want and what they want to be updated and gives their feedback to us.

14.2.4 Sprint Backlog

Team members will select backlog items and they will decide what they can work on. We will decide depending on estimated cost and estimated time. We are planning to use Aha! Software for Sprint Backlog.

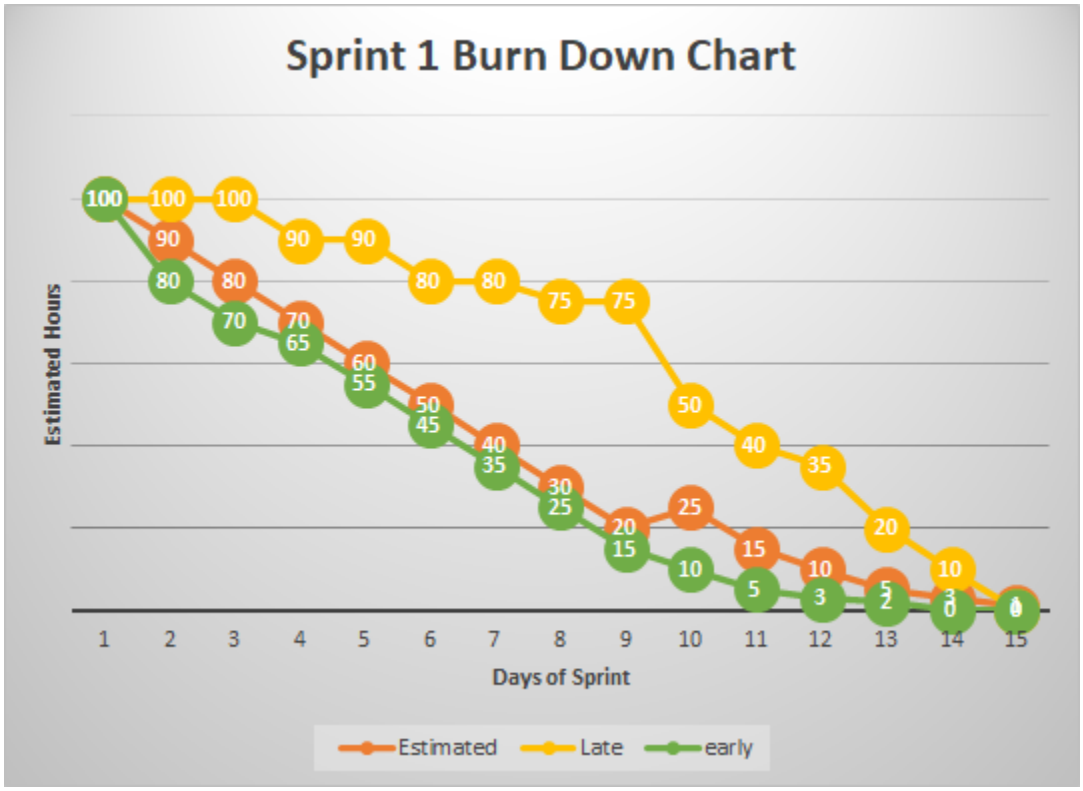
14.2.5 Task Breakdown

The team leader breaks down tasks equally to each member. The time is estimated for each task and if any members in the group are unable to complete the task on time, other members will help them to complete it. But we will go together in every part.

14.2.6 Sprint Burn Down Charts

Either the scrum master or the team leader will be in charge of generating burn down charts. This is done in two steps. First, a table of all the tasks required for the current sprint backlog and estimated days to finish those tasks is made. Second, sprint burndown charts are prepared along with an estimate and current position of the sprint run. This allows the team leader to see if the sprint is on time, early or late. An example of the table and the chart is given below.

Sprint hours left				
Tasks	Day 1	Day 2	Day 3	Day 4
Task 1	10	4	2	0
Task 2	10	10	6	4



14.2.7 Sprint Retrospective

During the Sprint Retrospective, we will discuss the last sprint. We will discuss what is working well and what needs to be improved in the next sprint to make it successful than the last one. We will do the meeting on the very next day of the sprint.

14.2.8 Individual Status Reports

All team members will write a report each week. A report includes our progress on the project about what we actually worked on that was planned and what we did that was not even planned. It also includes what we will be doing next week. It should be reported every week.

14.2.9 Engineering Notebooks

Engineering notebook is updated each week. All the members will write a report about what they did on that particular week for the project and their progress. The minimum number of pages that will be completed for each interval is 1 page. The team leader takes care of the report and lets other members know about the progress of the project. The team leader will sign off as a "witness" for each ENB page.

14.3 CLOSEOUT MATERIALS

14.3.1 SYSTEM PROTOTYPE

It will be demonstrated in early december. Since we are not doing a sponsored project, there will not be any Prototype Acceptance Test or Field Acceptance Test.

14.3.2. PROJECT POSTER

The project poster will include all the information related to the problems with the project we are making and what have we done to solve it and get a final product.

14.3.3 WEB PAGE

It will include all the information about the applications and the instructions on how to use the application.It will be accessible to the public after the team is done with the project. It will be provided at the closeout. If anything new is updated on the app , it will be notified on the web page.

14.3.4 DEMO VIDEO

The demo video will show the core functionality of the application and the instructions for the user to use the application. It will be 1-3 minutes long. The video will cover most of the features available in the application for the users.

14.3.5 SOURCE CODE

Source code will be maintained in the Github. The source code will be provided to the customers and they will have specific license terms to get the source code.

14.3.6 SOURCE CODE DOCUMENTATION

Doxygen will be used for the source code documentation.

14.3.7 HARDWARE SCHEMATICS

We will not be creating any circuits boards or writing components together

14.3.8 CAD FILES

The project will not involve any mechanical designs.

14.3.9 INSTALLATION SCRIPTS

No installation scripts will be provided to the customers.

14.3.10 USER MANUAL

Users will be provided with a digital user manual if needed.

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