XsQuadrant

Members:

Brenden Koneval, Joseph Vanliew, and Joachim Kuleafenu

Introduction

- Brenden Koneval (Frontend, Backend Support)
- Joseph Vanliew (Backend, Frontend Support)
- Joachim Kuleafenu (Backend, Frontend Support)

Joachim Kuleafenu

Joseph Vanliew

Project Description

- Real-time video chatting application for personal/professional use.
- Features include: instant messaging, screen sharing, and user identification.
- Scalable for a variety of contexts: online meetings, virtual gatherings.

- **Frontend:** React.js &MUI for building a responsive and dynamic user interface.
- **Backend:** Golang to handle server-side logic, ensuring performance and scalability.
- **WebRTC:** For real-time communication, facilitating peer-to-peer video and audio connections.
- **Socket.io or WebSockets:** For real-time messaging and maintaining open communication between users.
- **PostgreSQL:** As the database solution for user data, chat history, and video session metadata.
- **Cloud services:** AWS or Google Cloud for hosting, load balancing, and scaling the infrastructure.
- **Authentication:** OAuth2 or JWT for secure login and user verification.
- **CI/CD tools:** Github actions for continuous integration and deployment

Project Approach

- Incremental
  - Core functionality
  - Backend Signaling Server - Golang
  - Frontend Interface - React
  - Other features (chat, screen sharing)
  - Performance

Anticipated Challenges

- Latency issues
- Scalability
- Security

Project Timeline

PROJECT

Video Chat Application(TBD)

TASKS	TASK OWNER	Wk 1					Wk 2					Wk 3					Wk 4
		9/9	9/10	9/11	9/12	9/13	9/16	9/17	9/18	9/19	9/20	9/23	9/24	9/25	9/26	9/27	9/30
Phase 1: Project Structure		█	█	█	█	█	█	█									
Set up project structure	Brenden, Joachim, Joe	█	█	█	█	█											
Develop basic backend API with user management	Joe						█	█	█	█	█						
Pinpoint gaps in structure or project analysis	Brenden, Joachim, Joe											█	█				
Phase 2: Building Frontend Interface													█	█	█	█	
Define frontend interface	Brenden												█	█	█	█	
Integrate WebRTC for video and audio streaming	Joachim, Joseph																█
Test frontend interface	Brenden, Joseph, Joachim																
Test WebRTC functionality	Joseph, Joachim																
Phase 3: Implement real-time messaging																	
Implement real-time messaging	Joseph																
Sync messaging with video sessions	Joseph																
Phase 4: Add user authentication and session management																	
Establish user authetnication method	Joseph																
Add session management	Joachim																
Test authentication and security methods																	
Phase 5: Develop in-app features																	
Develop screen-sharing features	Joseph, Joachim, Brenden																
Test and validate functionalities are working	Joseph, Joachim, Brenden																
Phase 6: Deployment																	
Deploy VCA application	Joseph, Joachim, Brenden																
Conduct user testing	Joseph, Joachim, Brenden																
Optimize for performance and scaling	Joseph, Joachim, Brenden																
Have a final meeting	Joseph, Joachim, Brenden																
Turn in final deliverables	Joseph, Joachim, Brenden																

Project Timeline

PROJECT

Video Chat Application(TBD)

TASKS	TASK OWNER	Wk 5									Wk 6					Wk 7	
		10/1	10/2	10/3	10/4	10/7	10/8	10/9	10/10	10/11	10/14	10/15	10/16	10/17	10/18	10/21	10/22
Phase 1: Project Structure																	
Set up project structure	Brenden, Joachim, Joe																
Develop basic backend API with user management	Joe																
Pinpoint gaps in structure or project analysis	Brenden, Joachim, Joe																
Phase 2: Building Frontend Interface		▓	▓	▓	▓												
Define frontend interface	Brenden	▓	▓	▓	▓												
Integrate WebRTC for video and audio streaming	Joachim, Joseph	▓	▓	▓	▓												
Test frontend interface	Brenden, Joseph, Joachim																
Test WebRTC functionality	Joseph, Joachim			▓	▓	▓											
Phase 3: Implement real-time messaging						▓	▓	▓	▓	▓	▓	▓	▓	▓	▓		
Implement real-time messaging	Joseph																
Sync messaging with video sessions	Joseph														▓		
Phase 4: Add user authentication and session management																▓	▓
Establish user authentication method	Joseph															▓	▓
Add session management	Joachim															▓	▓
Test authentication and security methods																	
Phase 5: Develop in-app features																	
Develop screen-sharing features	Joseph, Joachim, Brenden																
Test and validate functionalities are working	Joseph, Joachim, Brenden																
Phase 6: Deployment																	
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Turn in final deliverables	Joseph, Joachim, Brenden																

Project Timeline

Video Chat Application(TBD)

TASKS	TASK OWNER				Wk 8					Wk 9					Wk 10		
		10/23	10/24	10/25	10/28	10/29	10/30	10/31	11/1	11/4	11/5	11/6	11/7	11/8	11/11	11/12	11/13
Phase 1: Project Structure																	
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Deploy VCA application	Joseph, Joachim, Brenden																
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Have a final meeting	Joseph, Joachim, Brenden																
Turn in final deliverables	Joseph, Joachim, Brenden																

Project Timeline

PROJECT

Video Chat Application(TBD)

TASKS	TASK OWNER	Wk 11							Wk 12					Wk 13			
		11/14	11/15	11/18	11/19	11/20	11/21	11/22	11/25	11/26	11/27	11/28	11/29	12/2	12/3	12/4	12/5
Phase 1: Project Structure																	
Set up project structure	Brenden, Joachim, Joe																
Develop basic backend API with user management	Joe																
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Phase 2: Building Frontend Interface																	
Define frontend interface	Brenden																
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Test frontend interface	Brenden, Joseph, Joachim																
Test WebRTC functionality	Joseph, Joachim																
Phase 3: Implement real-time messaging																	
Implement real-time messaging	Joseph																
Sync messaging with video sessions	Joseph																
Phase 4: Add user authentication and session management																	
Establish user authetnication method	Joseph																
Add session management	Joachim																
Test authentication and security methods																	
Phase 5: Develop in-app features			▦	▦	▦	▦	▦										
Develop screen-sharing features	Joseph, Joachim, Brenden		▦	▦	▦												
Test and validate functionalities are working	Joseph, Joachim, Brenden		▦	▦	▦	▦	▦										
Phase 6: Deployment									▦	▦	▦	▦	▦	▦	▦	▦	▦
Deploy VCA application	Joseph, Joachim, Brenden								▦	▦							
Conduct user testing	Joseph, Joachim, Brenden																
Optimize for performance and scaling	Joseph, Joachim, Brenden															▦	
Have a final meeting	Joseph, Joachim, Brenden																
Turn in final deliverables	Joseph, Joachim, Brenden																

Project Timeline

Video Chat Application(TBD)

TASKS	TASK OWNER	12/6
Phase 1: Project Structure		
Set up project structure	Brenden, Joachim, Joe	
Develop basic backend API with user management	Joe	
Pinpoint gaps in structure or project analysis	Brenden, Joachim, Joe	
Phase 2: Building Frontend Interface		
Define frontend interface	Brenden	
Integrate WebRTC for video and audio streaming	Joachim, Joseph	
Test frontend interface	Brenden, Joseph, Joachim	
Test WebRTC functionality	Joseph, Joachim	
Phase 3: Implement real-time messaging		
Implement real-time messaging	Joseph	
Sync messaging with video sessions	Joseph	
Phase 4: Add user authentication and session management		
Establish user authetnication method	Joseph	
Add session management	Joachim	
Test authentication and security methods		
Phase 5: Develop in-app features		
Develop screen-sharing features	Joseph, Joachim, Brenden	
Test and validate functionalities are working	Joseph, Joachim, Brenden	
Phase 6: Deployment		
Deploy VCA application	Joseph, Joachim, Brenden	
Conduct user testing	Joseph, Joachim, Brenden	
Optimize for performance and scaling	Joseph, Joachim, Brenden	
Have a final meeting	Joseph, Joachim, Brenden	
Turn in final deliverables	Joseph, Joachim, Brenden	

Remaining Tasks

Phase 3: Implement real-time messaging			▼	**10/07**	**10/21**	**11**
Implement real-time messaging	Joseph	Not Started	▼	10/07	10/15	7
Sync messaging with video sessions	Joseph	Not Started	▼	10/18	10/21	2
Phase 4: Add user authentication and session management			▼	**10/20**	**11/10**	**15**
Establish user authetnication method	Joseph	Not Started	▼	10/21	10/25	5
Add session management	Joachim	Not Started	▼	10/20	10/30	8
Test authentication and security methods	Joachim, Brenden	Not Started	▼	10/25	11/10	11
Phase 5: Develop in-app features			▼	**11/15**	**11/25**	**7**
Develop screen-sharing features	Joseph, Joachim, Brenden	Not Started	▼	11/15	11/20	4
Test and validate functionalities are working	Joseph, Joachim, Brenden	Not Started	▼	11/15	11/25	7
Phase 6: Deployment			▼	**11/25**	**12/07**	**10**
Deploy VCA application	Joseph, Joachim, Brenden	Not Started	▼	11/25	11/26	2
Conduct user testing	Joseph, Joachim, Brenden	Not Started	▼	11/28	12/01	2
Optimize for performance and scaling	Joseph, Joachim, Brenden	Not Started	▼	11/30	12/02	1
Have a final meeting	Joseph, Joachim, Brenden	Not Started	▼	12/02	12/03	2
Turn in final deliverables	Joseph, Joachim, Brenden	Not Started	▼	12/06	12/07	1

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Thank you!

Sources:
https://joseph-vanliew.github.io/GVSU-CIS641-XsQuadrant/
https://docs.google.com/spreadsheets/d/1hgke464XfMxjS-dUDM5lwAVON
CUL7wIiuDM-pIjJFrs/edit?gid=1435624678#gid=1435624678