Project Requirement Document

Team Name
No Cap Stone

Company Name
LogMeIn

Project Title
Best Face Forward

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Introduction
“First-round job interviews are the latest part of the hiring process to undergo digitization as companies use video interviews to cut recruiting costs and times…the method has grown in recent years as nearly everyone has access to a laptop or smartphone with a front-facing camera, and companies say it is an efficient, fair and inexpensive way to process hundreds of applicants.”  - Wall Street Journal

Online interviews help expedite the time it takes to connect the interviewer with the interviewee. The company is able to reach out to a greater population to tap into and expand the candidate pool. Video interviews are supposed to be more effective than a phone screen since the interviewers can get a better idea of who the candidate through visual and audio evaluation. In reality, online interviews are impersonal when talking to a screen, disengaging, hard to connect, and difficult to read physical cues. Interview software currently is also highly unorganized through different post-application stages including recruiter screening, first-round, and final-round stages. Because of these difficulties, interviewers often have limited information for a candidate and many times cannot gauge a candidate’s fit or skills as effectively as they could during in-person interviews. In today’s interview platforms, often it is a 2-way (or multiple)
video conference call with mute and toggle video capabilities. The conference call is not ideal as many times, it looks as if the individuals in the call are not making direct eye contact, audio may be missed, and a person may not be in a professional setting (i.e. their home). Furthermore, many companies must use separate software to keep track of and communicate with candidates through audio or video. Therefore, in our CS189 Capstone we have decided to focus on creating an application to redefine the online interview experience.

**Goal:**
The goal of this project is to create an application that streamlines the application process for the candidate and create an interview experience that is personal to both the interviewer and interviewee to capture the best qualities of each person.

We will create a personalized interviewing platform to better simulate a real, in-person interview by creating a web application with features including:

- Background Blur
- Filters (professional)
- Engagement and Sentiment Analysis of Audio (voice) and Video
- Access to details such as resume, notes, linkedin profile, github, shared notes
- Speech to Text logging
- Translation of interviewee
- Timers and reminders to ask pre-selected questions
- Live closed captioning and translate features
- Eye Gaze Correction

By getting more out of online interviews, companies will have to interview fewer candidates because they will get a better feel for the soft skills of each candidate during the online process. This will save employers substantial time and labor, as well as helping them select candidates that are a better fit.
Objectives:

The MVP for this project will be a web application that automatically joins a video call. The interviewer will also be able to create a meeting, which will be accessed by a meeting ID. In the video call you can create notes. The interviewer will be able to see a sentiment analysis during the video call, and their notes. After the video call, the interviewer will be able to see a transcript, their notes, and the sentiment analysis of the call.

Goals:

- Host 2 person video interviews with useful widgets for the interviewer
  - Checkboxes, timers, notes, agenda, etc.
- Speech recognition to produce a transcript of the interview
  - Analysis of sentiment during responses
- Indicators for the interviewer about how the interviewee is responding. This will be a simple colored light helping the interviewer understand physical cues that are hard to pick up over video
- Interviewer and interviewee have a screen showing separate meeting
- Interviewer and interviewee can create notes for a meeting before the meeting and will be able to read and access them during the meeting as well as after the meeting
- Interviewer can see a timer of the meeting time
- Interviewer can create meetings

Stretch Goals:

- Eye gaze correction
- Face Sentiment Analysis from live video stream
- Multi-person interviews

System Architecture
App End 2 End Flow

LOGIN

ID  
NAME  
or  
USER  
PASS  

LogMeIn

Make acct
user/pass/name/emp

Converter/whomever sets up meeting times

Completed Meeting  
Bik  
John  
Tom  
Ryan  

Creating Meeting

Applicant Page

Bik  
ID:  
Resume:
Notes:

Join Meeting

Back
# User Stories

## Interviewee

<table>
<thead>
<tr>
<th>Pre Interview</th>
<th>During Interview</th>
<th>Post Interview</th>
</tr>
</thead>
</table>
| ● Easy access link to the video interview  
● Be able to schedule meeting  
● Be able to see the Job description for reminder  
● The pre-interview notes the interviewee wrote down. | ● A notepad to write down questions  
● Be able to share screen  
● Be able to see resume  
● Ability to reconnect if technical difficulties occur  
● Background blur  
● Suppress background noise. | ● Show the notes the interviewee took  
● When to hear back about next steps |

## Interviewer

<table>
<thead>
<tr>
<th>Pre Interview</th>
<th>During Interview</th>
<th>Post Interview</th>
</tr>
</thead>
</table>
| ● Personal Info of the Interviewee uploaded  
● Schedule interview  
● Notepad to Brainstorm questions  
● Checklist | ● Be Able to see the interviewee’s resume  
● Share Screen  
● A checklist to remind the interviewer  
● Assess emotion/engagement with sentiment analysis  
● Blur background  
● Timer  
● Closed Captioning  
● Live Translate | ● Place to comment about candidate and give feedback about applicant  
● Display results of the engagement analysis  
● See checklist and notes |

## Recruiter

<table>
<thead>
<tr>
<th>Pre Interview</th>
<th>During Interview</th>
<th>Post Interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>● Notes from Interview</td>
</tr>
</tbody>
</table>
**User Stories**

- #1 Lay stub code: [https://trello.com/c/qcMDXpAh](https://trello.com/c/qcMDXpAh)
- #2 Create login page: [https://trello.com/c/dRWyL862](https://trello.com/c/dRWyL862)
- #3 Networked video chat: [https://trello.com/c/l5uwnFQc](https://trello.com/c/l5uwnFQc)
- #4 Sentiment analysis of text: [https://trello.com/c/R0yDgCkQ](https://trello.com/c/R0yDgCkQ)
- #5 Display sentiment analysis: [https://trello.com/c/9VPZov3C](https://trello.com/c/9VPZov3C)
- #6 [Spike] sentiment analysis: [https://trello.com/c/I0IGdJVH](https://trello.com/c/I0IGdJVH)
- #7 [Spike] Video Call: [https://trello.com/c/7Yl05jJd](https://trello.com/c/7Yl05jJd)
- #8 [Spike] Speech to Text: [https://trello.com/c/6KuUS1Is](https://trello.com/c/6KuUS1Is)
- #9 [Spike] Speech to text (realtime): [https://trello.com/c/rNZ0mgON](https://trello.com/c/rNZ0mgON)
- #10 [Spike] Display analysis: [https://trello.com/c/ssdXFhQh](https://trello.com/c/ssdXFhQh)
- #11 Create subtitles for transcript: [https://trello.com/c/Kq37C1sh](https://trello.com/c/Kq37C1sh)
- #12 Google Translate API: [https://trello.com/c/4ZOHU2ug](https://trello.com/c/4ZOHU2ug)
- #13 put together the demo product: [https://trello.com/c/EMB1H3QL](https://trello.com/c/EMB1H3QL)
- #14 setup database with API calls and schema: [https://trello.com/c/qxDBCHwr](https://trello.com/c/qxDBCHwr)

**User Stories Prototype code:**

#2: Create Login Page: [https://github.com/andrewdoanutz/No-Cap-Stone/pull/8](https://github.com/andrewdoanutz/No-Cap-Stone/pull/8)
#7 video call:  [https://github.com/andrewdoanutz/No-Cap-Stone/pull/6](https://github.com/andrewdoanutz/No-Cap-Stone/pull/6)
```javascript
import React, { useState, useEffect } from 'react';
import Video from 'null-video';
import Participant from './Participant';

const Room = ( {{ name, tokens, handleLogin }} ) => {
  const [room, setRoom] = useState(null);
  const [participants, setParticipants] = useState([]);

  useEffect(() => {
    const participantConnected = participant => {
      setParticipants(preParticipants => [...preParticipants, participant]);
    };
    const participantDisconnected = participant => {
      setParticipants(preParticipants => {
        preParticipants.filter(p => p !== participant);
      });
    };
    video.connect( room, {
      name: roomName,
      tokens: tokens,
      on: room => {
        setRoom(room);
      },
      onParticipantConnected : participantConnected,
      onParticipantDisconnected : participantDisconnected,
      onParticipant: onRoom.participants(participantConnected);
    });

    return () => { 
      if (currentRoom && currentRoom.localParticipant.xstate === 'connected') {
        return null;
      } else {
        return currentRoom;
      }
    };
  });

  useEffect(() => {
    currentRoom.participants.map(participant => {
      Participant.key=participant.id) participants=[participant] ;
    });

    return { 
      <div className="room">
        <div className="room-title"><h2>{name}</h2>
        <div className="local-participant">
          <div>
            <div className="participant">
              <div className="participants">
                participants={room.localParticipant}
              </div>
            </div>
          </div>
        </div>
      </div>
    };
  };

export default Room;
```
#9 Sentiment Analysis: [https://github.com/andrewdoanutz/No-Cap-Stone/pull/9](https://github.com/andrewdoanutz/No-Cap-Stone/pull/9)
#11 create subtitles for transcript:  https://github.com/andrewdoanutz/No-Cap-Stone/pull/5
#14 Set up database: https://github.com/andrewdoanutz/No-Cap-Stone/pull/12
Technologies

- **Node.js** and **React (JS)** for our web-application
- **AWS DynamoDB** for our database and to host our application
- **Tensorflow** as our primary machine learning library
- **IBM watson** for sentiment analysis

Development Link:
https://github.com/andrewdoanutz/No-Cap-Stone