

Emotions Tracking Browser Extension for use in Classrooms

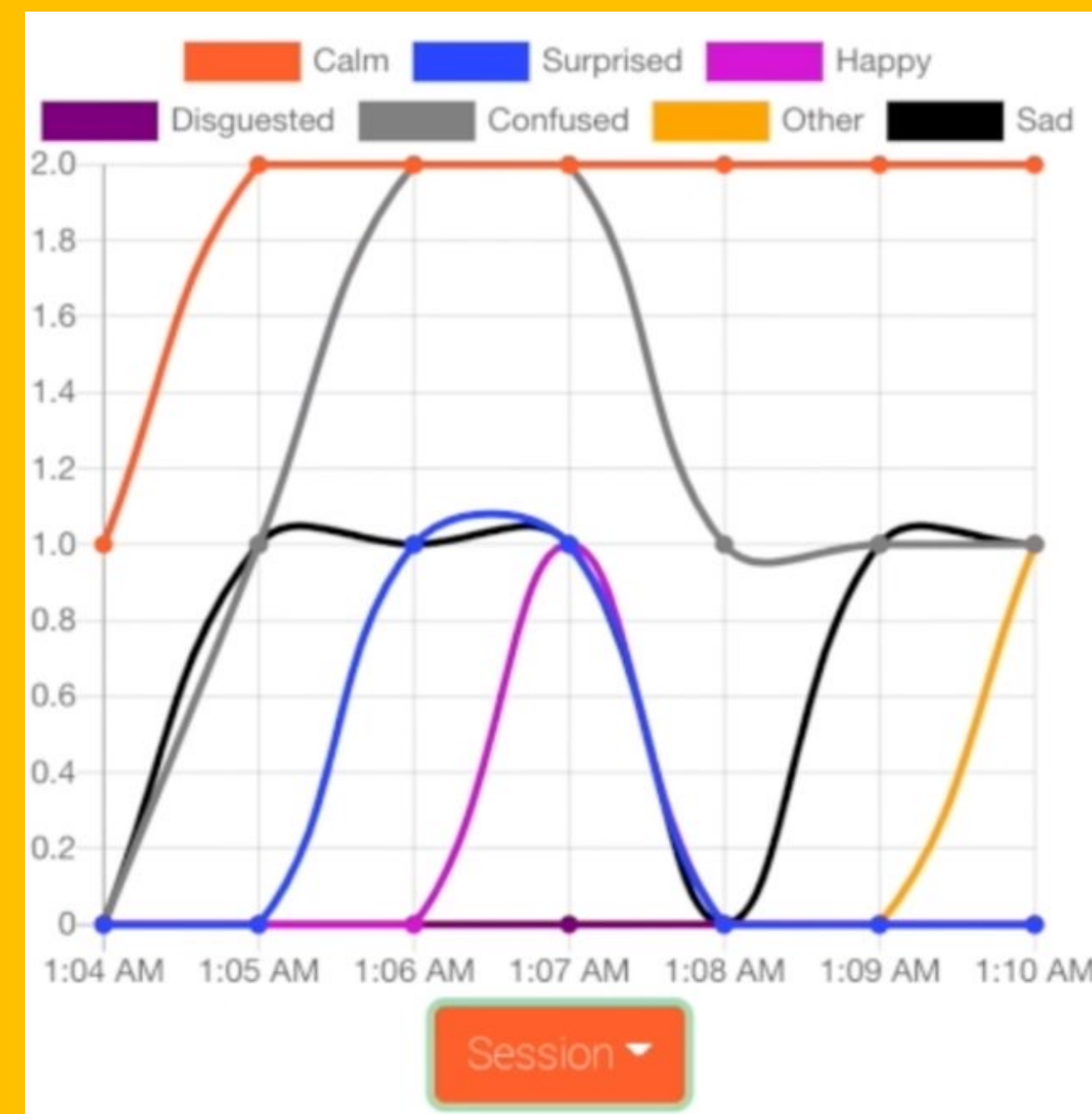
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Goal

Over the past several months, many students have found it more difficult to stay engaged in the online classroom. Instructors have also found teaching to be less enjoyable and more frustrating due to the lack of student engagement.

Our app aims to use a student's webcam to track their emotions and awareness during lectures and provide near real time feedback to the instructor to better simulate face-to-face engagement found in physical classrooms.



Graph showing student emotion during a lecture.

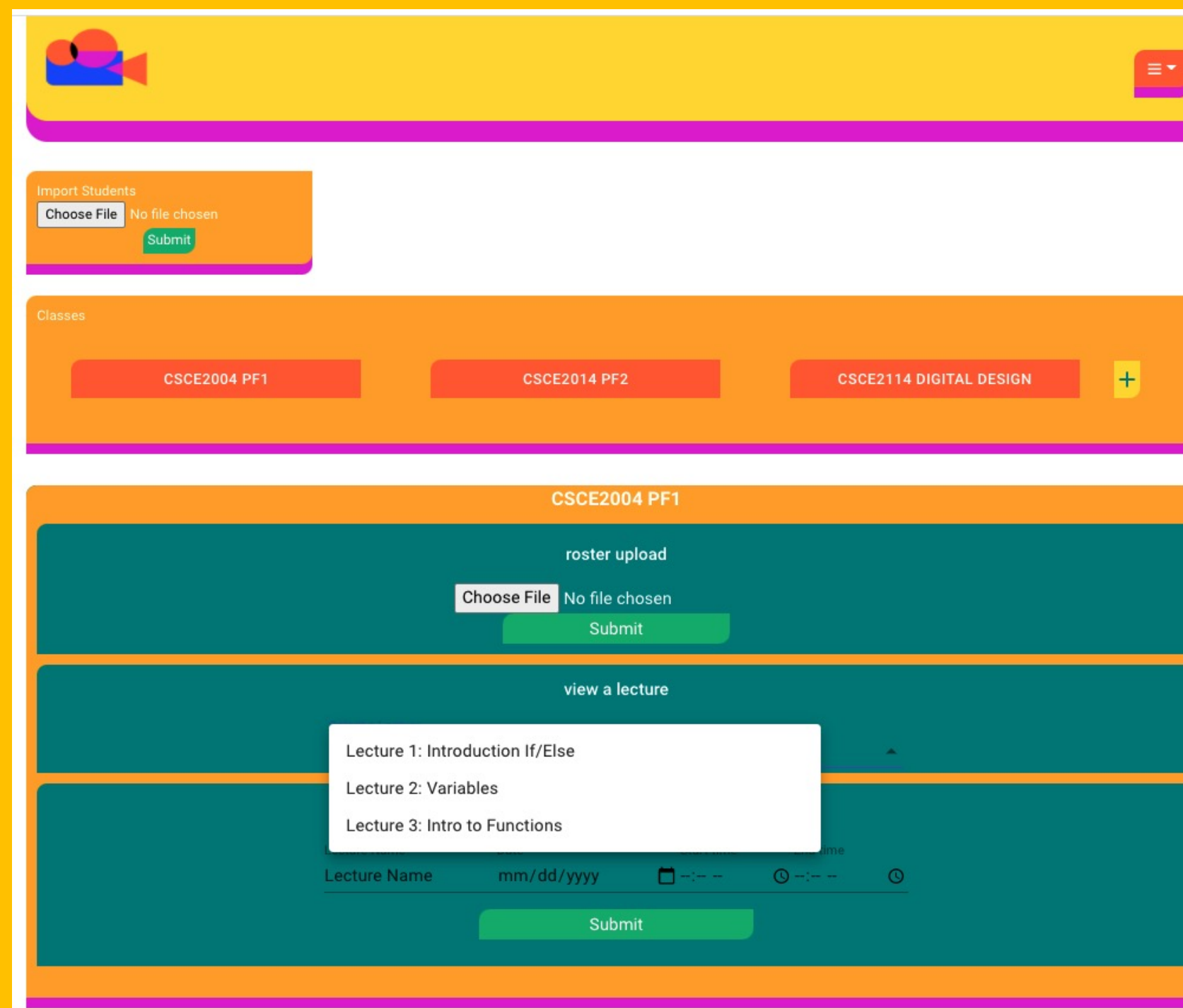
Design

Students:

- Minimal interaction while participating in class
- Need only log in to session

Teachers:

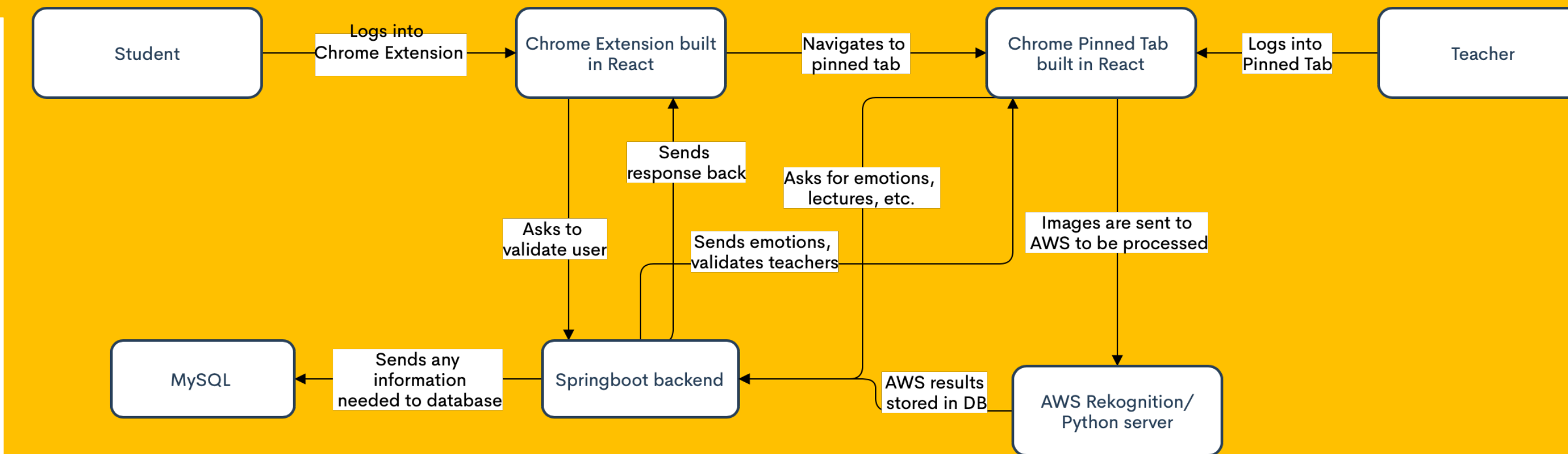
- Upload students/rosters
- Add classes and lectures
- View report page with student's emotions during lecture
- Create predictive model
- View: not listening, actively listening, neutral



Teacher's Page

Acknowledgements

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Architecture

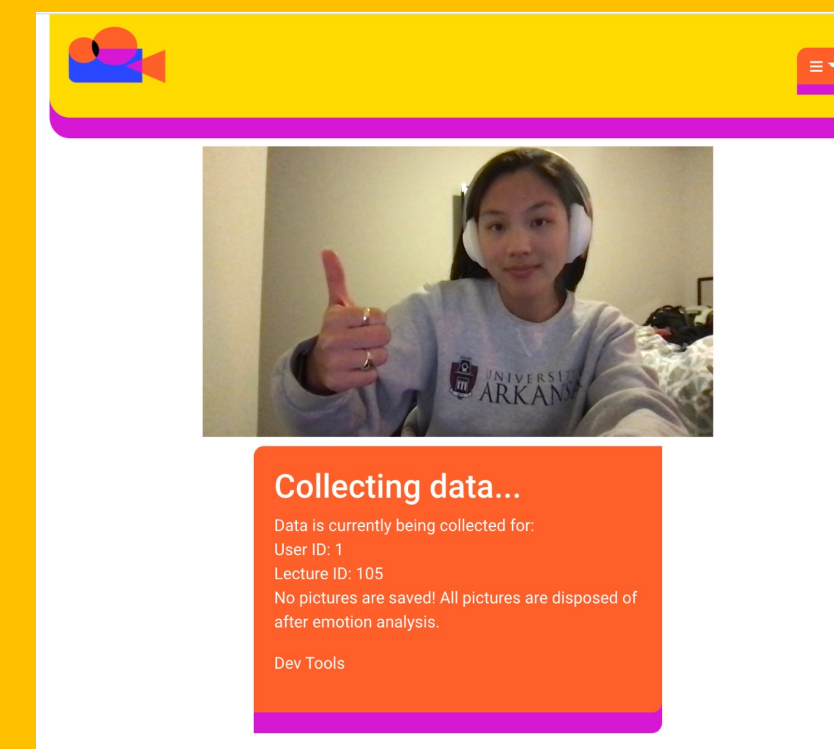
MySQL Database – tables for all entities

Java Springboot backend – Communicates with all other services

AWS Reckognition/Python backend – Handles image processing for emotion tracking

Chrome Extension frontend – Entry point/navigation, used with any conferencing web service, built with React

Pinned Tab frontend – Captures expressions, displays lecture data, adds lectures, students and predictive models



The pinned tab interface: This is what will be going on in the background while a student attends a lecture. Data is gathered while the tab is active.

Conclusion

We set out to find a way to help bridge the gap between instructors and students in the online classroom. After one semester of planning and another of rapid development, we can say that we achieved our goal. Instructors can use the app to accurately monitor student's facial expressions to determine awareness and comprehension in near real time. Currently, only student emotions are tracked, but with more time and work, we believe it could be adapted to track gestures and improve its accuracy through machine learning.