Innovate@UCLA

Cruisin' for a Bruin

Meet Our Team

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Problem Space

TOO LITTLE

Not enough reception from students on their understanding of course material

TOO LATE

Current way to assess understanding is through graded assignments

TOO BROAD

Feedback isn't lesson specific, teachers are unable to identify pain point

Problem Space

2019 research[1] shows that student reported **lesson-specific feedback** provides teachers the understanding of where they can make improvements to their lessons.

User Research

Subject: Spanish/Italian (College)
Tenure: 40+ years
Location: Colorado Springs, CO

*"I'm used to administering student surveys at the end of the quarter, but I wish there was a way to receive **more immediate feedback** so I can act sooner. I also wish there was **less paperwork** to deal with".*

Subject: Social Studies (Middle school)
Tenure: 1 year
Location: Oakland, CA

*"Graded assignments are one of the only ways I understand where my students are struggling. I **want to help my students without assigning extra work** or jeopardizing their grades"*

Subject: Science (Middle School)
Tenure: 3 years
Location: Hyderabad, India

*"Currently, we use **apps that...don't have a concrete structure** to help teachers [understand the level of student engagement]"*

User Insights

What do I do next?

Teachers would like to have more clarity into **how to action** the feedback obtained from the students.

How are my students doing?

Teachers would like a quick & easy way to assess **how their students are doing** and whether they may need additional help/resources

What if I want to know more?

Teachers expressed the need for both at-a-glance feedback and **detailed comments**

How does one class compare to another?

Teachers would like to be able to ask for **class- and/or topic-specific feedback** rather than focus on general performance questions

Solution Overview

Actionable Insights

Allows teachers to view clear & actionable insights to improve student experience without the need to sift through large volume of feedback.

Student Sentiment

At-a-glance student sentiment that allows teachers to see what % of students may need help or resources to succeed.

Customizable Survey

Easily customizable survey questions that allow teachers to obtain relevant class- and topic-specific feedback.

Detailed Feedback

Allows teachers to access detailed yet anonymous feedback to derive further insights to improve the student experience and teaching outcomes.

The Root

Helping teachers get to the root of the problem

Welcome back,
Prof. Smallberg!

Your Courses

+

CS 31

Key Solution Features

Personalized

Buttons for each section help a teacher easily navigate and assess student inputs across classes

Flexible

Teachers can add or delete an existing section if they're allotted as a substitute or have to take-up a new class mid-year

Non-Linear

The search, lesson list, and chat features at the bottom help source dynamic, real-time inputs across an entire school year

Key Solution Features
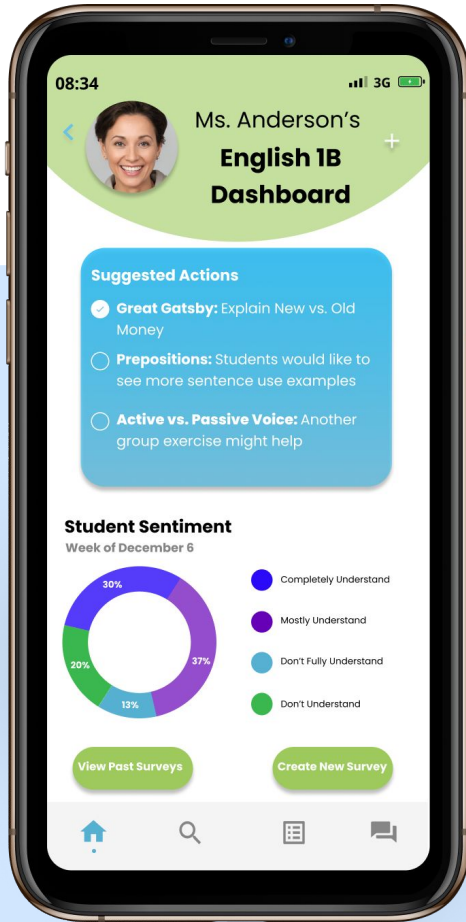
Focused
Suggested actions feature provides the teacher with the top 3 pain points that merit attention

Rewarding
Simple insights, in form of a checklist, would provide instant gratification to view and act on student feedback

Analytical
The donut chart would help teachers get a pulse of students' level of comfort with material covered in the previous week

Key Solution Features
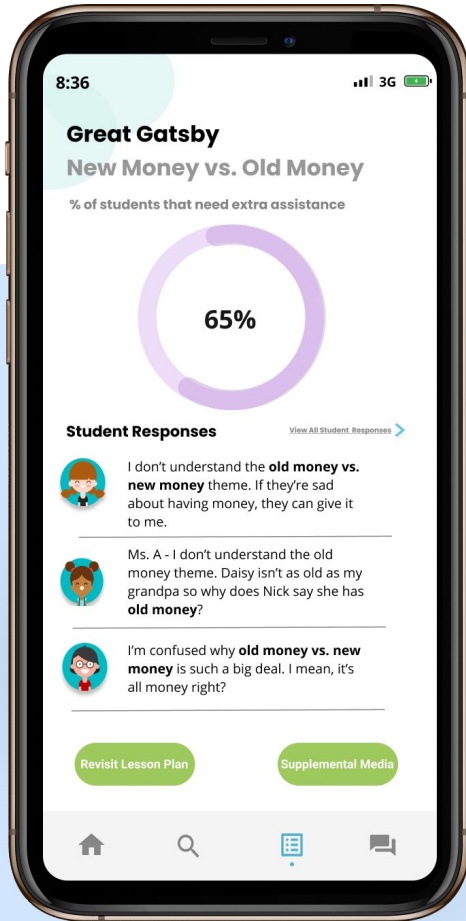
Deliberate
Feedback responses help teachers distill the root cause of student learning gaps

Empathy Driven
Voice of students would help teachers step into their shoes and address pain points that most impact them

Instructive/Edifying
Supplemental media button at the bottom would clarify teachers' knowledge of the topic or help them think through creative ways to introduce tough concepts

Solution Feedback

"With The Root, I'm better equipped to **understand where my students are struggling**"

—Janae Harris

"The Root allows me to get **feedback** that I can **action immediately"**

—Salvatore Bizzarro

"The Root would **engage both teachers and students**"

—Anila Adusumilli

Product Architecture

Our Solution

Front End

We used HTML, CSS and Javascript to style the app. To visualize data, we relied on Chart.js library and Jinja template

Back End

We used Flask - Python micro web framework - to style data and AWS DynamoDB database to store it

AI/ML Algorithm

Our NLP based algorithm uses key phrases and sentiments sourced from Amazon Comprehend

Market Opportunity

	Survey	Analytics	Lesson-Specific Feedback	Recommendations
pi Happiness FEEDBACKS | SURVEYS	✔	✔	✘	✘
CROWD SIGNAL	✔	✔	✘	✘
The Root	✔	✔	✔	✔

- Launch MVP
- Market to K-12 demographic
- 1 district, 5 schools

- Expand to community colleges
- Launch messaging feature

- Create cross-university student and teacher collaboration feature

YEAR 1 **YEAR 2** **YEAR 3** **YEAR 4** **YEAR 5**

- Launch reward incentivizing feature
- Expand by 2 districts & 5 schools

- Expand to universities
- Add feature to enable teacher collaboration

Business Case

REVENUE
- YEAR 1 $53K
- YEAR 2 $147K
- YEAR 3 $240K
- YEAR 4 $892K
- YEAR 5 $2.097M

COST
- YEAR 1 $338K
- YEAR 2 $373K
- YEAR 3 $441K
- YEAR 4 $1.134M
- YEAR 5 $1.777M
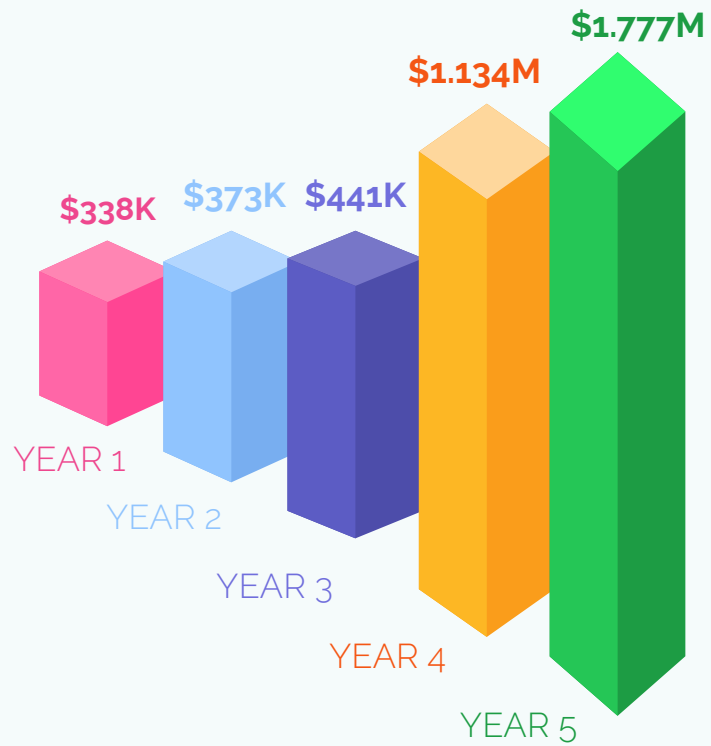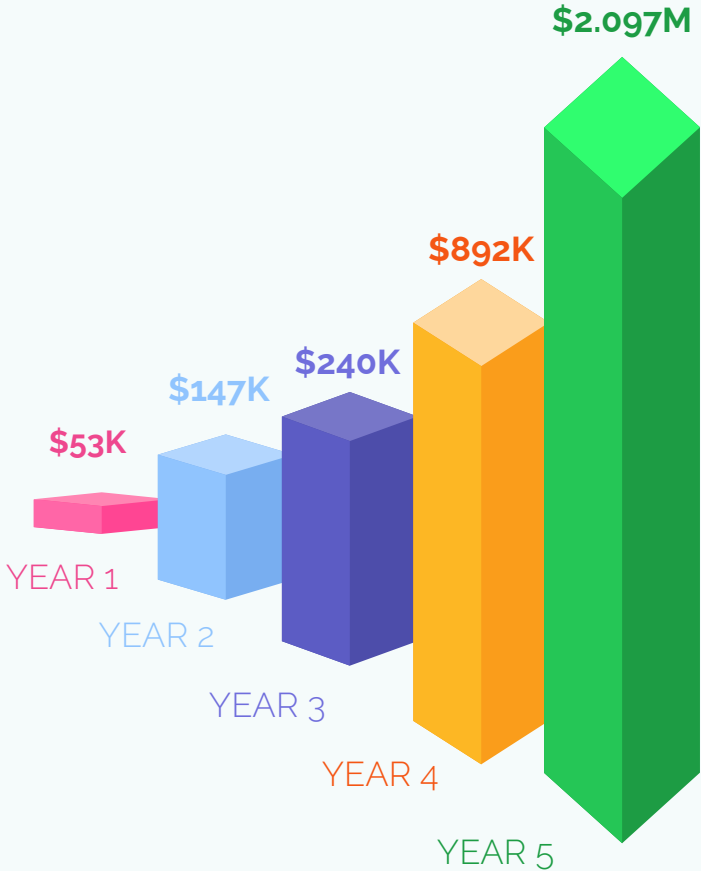
PROFIT
- YEAR 1 $-285,000
- YEAR 2 $-226,000
- YEAR 3 $-201,000
- YEAR 4 $-242,000
- YEAR 5 $320,000

REVENUE   COST   PROFIT

Risks

| | Futile public school funding | Threat of attacks on student and teacher PII | K-12 students abuse teacher feedback and cloud useful insights |

Mitigation

| Make product affordable to schools and teachers ($2/student) | • Train Employees on data privacy/phishing
• Enable multi-factor authentication | Introduce anonymous feedback feature only for universities and community colleges |

Market Potential

EdTech Projected Market Size, 2027

$253.4 Billion*

$5 Million

•

Our Revenue Goal, 2027

THANK YOU!

Q&A

APPENDIX

Cost Structure Assumptions

- Cost of app development, new features, updates and maintenance are implicitly built into the time and material (T&M) charges of the employee

- For years 1-3, current team will split time across functions, i.e., a software engineer would need to allocate his time between deployment, maintenance and support
    - We would hire a part-time marketing manager, UI/UX designer and cybersecurity expert to increase our product reach across schools
    - Hourly rate would increase by 10% each year

- Expansion to universities and colleges in years 4 & 5 involves sourcing full-time employees to design new features, marketing product, and mitigating cybersecurity risk

- 10% of total expenses are allocated as miscellaneous expenses and include costs such as licenses, copyrights, transition to AWS, and legal fees.

5-Year Cost Structure

	YEAR-1	YEAR-2	YEAR-3	YEAR-4	YEAR-5
UI/UX	$38,400	$42,240	$46,464	$55,680	$122,496
APP DEVELOPMENT	$159,120	$175,032	$192,535	$453,120	$589,248
APP TESTING AND DEPLOYMENT	$28,000	$31,680	$34,848	$153,600	$253,440
ONGOING SUPPORT AND MAINTENANCE	$28,000	$31,680	$34,848	$134,400	$221,760
MARKETING	$28,000	$31,680	$34,848	$76,800	$168,960
SECURITY	$24,000	$26,400	$58,080	$157,440	$259,776
MISCELLANEOUS	$30,792	$33,871	$40,162	$103,104	$161,568
TOTAL	$338,712	$372,583	$441,786	$1,134,144	$1,777,248

5-Year Cost Structure: Year 1

	Hourly Rate	Hours per Day	Daily Cost	Monthly cost	Annual Cost	Number of Employees	Total Cost
UI/UX Designers	$20	2	$40	$800	$9,600	4	$42,240
Software Engineer – Deployment	$18	4	$72	$1,440	$17,280	4	$76,032
Software Engineer – Maintenance	$15	2	$30	$600	$7,200	4	$31,680
Product Manager	$25	5	$125	$2,500	$30,000	3	$99,000
Marketing Manager	$30	4	$120	$2,400	$28,800	1	$31,680
Software Support Engineer	$15	2	$30	$600	$7,200	4	$21,680
Security Systems Engineer	$25	4	$100	$2,000	$24,000	1	$26,400
Miscellaneous Expenses							$33,871
TOTAL							$372,583

5-Year Cost Structure: Year 2

	Hourly Rate	Hours per Day	Daily Cost	Monthly cost	Annual Cost	Number of Employees	Total Cost
UI/UX Designers	$22	2	$44	$880	$10,650	4	$42,240
Software Engineer – Deployment	$19.8	4	$79.2	$1,584	$19,008	4	$76,032
Software Engineer – Maintenance	$16.5	2	$33	$660	$7,920	4	$31,680
Product Manager	$27.5	5	$137.5	$2,750	$33,000	3	$99,000
Marketing Manager	$33	4	$132	$2,640	$31,680	1	$31,680
Software Support Engineer	$16.5	2	$33	$660	$7,920	4	$31,680
Security Systems Engineer	$27.5	4	$110	$2,200	$26,400	1	$26,400
Miscellaneous Expenses							$33,871
TOTAL							$372,583

5-Year Cost Structure: Year 3

	Hourly Rate	Hours per Day	Daily Cost	Monthly cost	Annual Cost	Number of Employees	Total Cost
UI/UX Designers	$24.2	2	$48.4	$968	$11,616	4	$46,464
Software Engineer – Deployment	$21.78	4	$87.12	$1,742	$20,909	4	$83,635
Software Engineer – Maintenance	$18.15	2	$36.3	$726	$8,712	4	$34,848
Product Manager	$30.25	5	$151.25	$3,025	$36,300	3	$108,900
Marketing Manager	$36.3	4	$145.2	$2,904	$34,848	1	$34,848
Software Support Engineer	$18.15	2	$36.3	$726	$8,712	4	$34,848
Security Systems Engineer	$30.25	4	$121	$2,420	$29,040	2	$58,080
Miscellaneous Expenses							$40,162
TOTAL							$441,786

5-Year Cost Structure: Year 4

	Hourly Rate	Hours per Day	Daily Cost	Monthly cost	Annual Cost	Number of Employees	Total Cost
UI/UX Designers	$29	8	$232	$4,640	$55,680	1	$55,680
Software Engineer – Deployment	$43	8	$344	$6,880	$82,560	2	$165,120
Software Engineer – Maintenance	$40	8	$320	$6,400	$76,800	2	$153,600
Product Manager	$50	8	$400	$8,000	$96,000	3	$288,000
Marketing Manager	$40	8	$320	$6,400	$76,800	1	$76,800
Software Support Engineer	$35	8	$280	$5,600	$67,200	2	$134,400
Security Systems Engineer	$41	8	$328	$6,560	$78,720	2	$157,440
Miscellaneous Expenses							$103,104
TOTAL							$1,134,144

5-Year Cost Structure: Year 5

	Hourly Rate	Hours per Day	Daily Cost	Monthly cost	Annual Cost	Number of Employees	Total Cost
UI/UX Designers	$31.9	8	$255.2	$5,104	$61.248	2	$122,496
Software Engineer – Deployment	$47.3	8	$378.4	$7,568	$90,816	3	$272,448
Software Engineer – Maintenance	$44	8	$352	$7,040	$84,480	3	$253,440
Product Manager	$55	8	$440	$8,800	$105,600	3	$316,800
Marketing Manager	$44	8	$352	$7,040	$84,480	2	$168,960
Software Support Engineer	$38.5	8	$308	$6,160	$73,920	3	$221,760
Security Systems Engineer	$45.1	8	$360.8	$7,216	$86,592	3	$259,776
Miscellaneous Expenses							$161,568
TOTAL							$1,777,248

Revenue Structure

Revenue assumptions: Priced at $2/student to promote affordability + increase access

https://docs.google.com/spreadsheets/d/12CZd3sc-KBNpHDTZFy7QWvLeHogK3JFSmtH8yFto4rY/edit#gid=0

Total # of Students and average price per district calculated by:
https://drive.google.com/file/d/1lD7WJbAJTieF8Bvo3kSLAkBRumNT06yO/view?usp=sharing

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