



March 31 - April 2, 2019  
Williamsburg Lodge, Williamsburg, VA

# Hackathon 2019

## Team CHOP

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A convergence of technologies in the digital connected care revolution.





# THE PROBLEM

- Bullying: Children continue their behavioral when they realize it is hurting someone, and are sometimes motivated by a feeling of power and control
  - Conflict: they generally stop when they realize they are hurting someone
- Cyberbullying is bullying that takes place over digital devices like cell phones, SMS, social media, etc



# SCOPE OF PROBLEM

- 15.5% of high school students and 24% of middle school students reported being cyberbullied in 2015
- The percentage of individual who have experienced cyberbullying at some point in their lifetimes have nearly doubled (18% to 34%) from 2007-2016.
- Impact of bullying:
  - Education – school avoidance
  - Health – physical and emotional symptoms (depression , stomachaches)
  - Safety – harm to self and others



# SCOPE OF PROBLEM

- Only 33% of teen talk to their parents about bullying
- There are barriers to children seeking help:
  - Fear of reduced internet or cellphone privileges
  - Think it does no good
  - Feel ashamed or responsible
- Victims of cyberbullying are most likely to tell a friend about the incident
- Staff are not appropriately equipped to deal with the epidemic of cyberbullying
- Reporting websites/apps has been shown to not be helpful





# **SOLUTION: Bully Buddy**

- Chatbot artificial intelligence that provides support and seamlessly direct users to different level of care
- Solves both sides of the problem
- Users:
  - Students (victims and observers)
  - School Staff (counselor, teachers, any staff)
- Apply best practices of American Psychiatric Association and American Academy of Child and Adolescent Psychiatry



# Bully Buddy for Students

- **“Pre-Triage”**
- Lower barrier for children to seek help
- Anonymous
- 3 level of support depending on severity:
  - Artificial intelligence Coaching
  - Peer support
  - Access to behavioral health provider
- Check-ins like a friend would
  - 30 min later, 2 hours later, a few days later, the following week



# Meet Billy

- 13 year old 8<sup>th</sup> grade middle school student in Pennsylvania being cyberbullied
- He sees flyers around school saying to text “BUDDY” for help.
- He text “BUDDY” and meets Tim\*, the artificial intelligent Chatbot
- Tim\* provides:
  - Artificial intelligence Coaching
    - Empathic Listening, Affirmations, etc
  - Peer support
    - Collaborates with [pacerteensagainstbullying.org](http://pacerteensagainstbullying.org) network
  - Access to behavioral health provider



# Bully Buddy for School Staff

- Artificial Intelligence **Triaging** for Behavioral Health Needs
- School staff are not trained or know what to do
- Bully Buddy is a solution that **empowers** school staff
- Guides staff on how to **engage with the student**
  - Important questions to ask the students to assess the situation
- Quick – less than 5 minutes
- Easy to use
- Help staff triage level of acuity
- Tailoring answers with real time input





# Meet Tracy

- School counselor in Pennsylvania school district
- He has been instructed by school leadership to text “BUDDY” when informed of a bullying incident
- YOU, yes You, the audience are the school staff
- Please text “**GO**” to **215-544-2635**



# Bully Buddy for School Staff

## Bullying incident reported to an adult

Chatbot algorithm to assess level of risk, then triage

- A. Lowest level of risk offers **resources & coaching**
- B. Middle level of risk offers **referrals** to mental health professionals within zip code
- C. Highest level of risk **directly connects to telebehavioral health specialist**



# Future Growth

- Gamification for students
  - Points for choosing right course of action in video game scenarios
- Connections to website optimized for mobiles
  - [Pacersteensagainstkids.org](http://Pacersteensagainstkids.org)



# Business Model

- Bully Buddy is a non-profit
- Contracts with telebehavioral health vendors or national or local crisis hotlines
- Is Not a service provider
- License Fee to school districts





# Why schools would want this?

- Empowering school staff to guide victims of bullying
- Good public relations
- Their community wants it
- Low hanging fruit:
  - Work with school districts with high suicide rate
  - Work with school districts with low counselor/student ratio



# Marketing to School

- Crowd-source
- Collaboration with Pacer's National Bullying Prevention Center
- School does the marketing for the students to use



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## Discussion

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# COMPETITION

- **WatsonApp**- Innovators in Spain teamed up with IBM to use an AI chatbot to help teachers identify and prevent bullying. The kids interact with the chatbot and how kids answer and interact feeds into the chatbot. Then a confidential report is shared with the school.
- **STOPit SOLUTIONS**- a private place to report inappropriate behavior
- **Stopbullying.gov**-teaches kids to identify bullying and how to stand up to it.
- **Speak Up**- an app that teaches kids to anonymously report an incident and sends to school administrator
- **Pacer Kids against Bullying-bullying** prevention center, online
- **Bullyfree.com**-promotes the golden rule , workshops and online



# Technology & Data

- Using artificial intelligence as a Chatbot
  - Classification targets and variables.
- Initially Supervised machine learning
- Collecting data for population research and national bullying data

# Algorithm

- Chatbot: Hi, I'm Molly, your Bully Buddy. Before we begin, what is the zip code of where your student live?
- Text: 19103 (philadelphida center city)
- Please ask the student to describe the situation and please ask the student the following questions:
- Is this a one-time incident?
  - If No -> go to next question (2)
  - If yes -> Chatbox: Please provide conflict resolution. (Direct to [pacerteensagainstbullying.org](http://pacerteensagainstbullying.org) and other resources, Low acuity level)
- Does the other student know they are hurting you?
  - If No -> Chatbox's response: Please provide communication techniques and conflict resolution. (Direct to [pacerteensagainstbullying.org](http://pacerteensagainstbullying.org) and other resources, Low acuity level)
  - If Yes -> go to next question (3)
- Do the other student continue to bully you despite knowing it is hurtful?
  - If yes -> Chatbox next question(4)
  - If no -> Please provide empathetic listening and appropriate counseling. (Direct to [pacerteensagainstbullying.org](http://pacerteensagainstbullying.org) and other resources, Low acuity level)
- Have it gotten to the point that you're missing school, having physical symptoms you usually do not, or feeling anxious or depressed?
  - If yes -> go to 5)
  - If no -> go to 5)
  - Regardless of yes or no, go to 5)
- Do you have wishes you were dead or have thoughts of hurting yourself? ← this question is always asked despite Yes or No to question 4)
  - If Yes then direct to call telebehavioral health (Calls Dr. Vo 215.687.0611 high acuity level) or local mental health crisis hotline
  - If No to 5) and Yes to 4) ->> Chatbox response: Please refer students to these local resources for behavioral health treatment. Since you are in Philadelphia, the age of consent for mental health treatment is 13. If the student is under 13, you will have to talk to parents to refer the student to these resources: (link to community health resources based on the zip code provided)
  - IF No to 5) and No to 4) -> Chatbox response: Please provide resilience training and appropriate counseling. (Direct to [pacerteensagainstbullying.org](http://pacerteensagainstbullying.org) and other resources, Low acuity level)