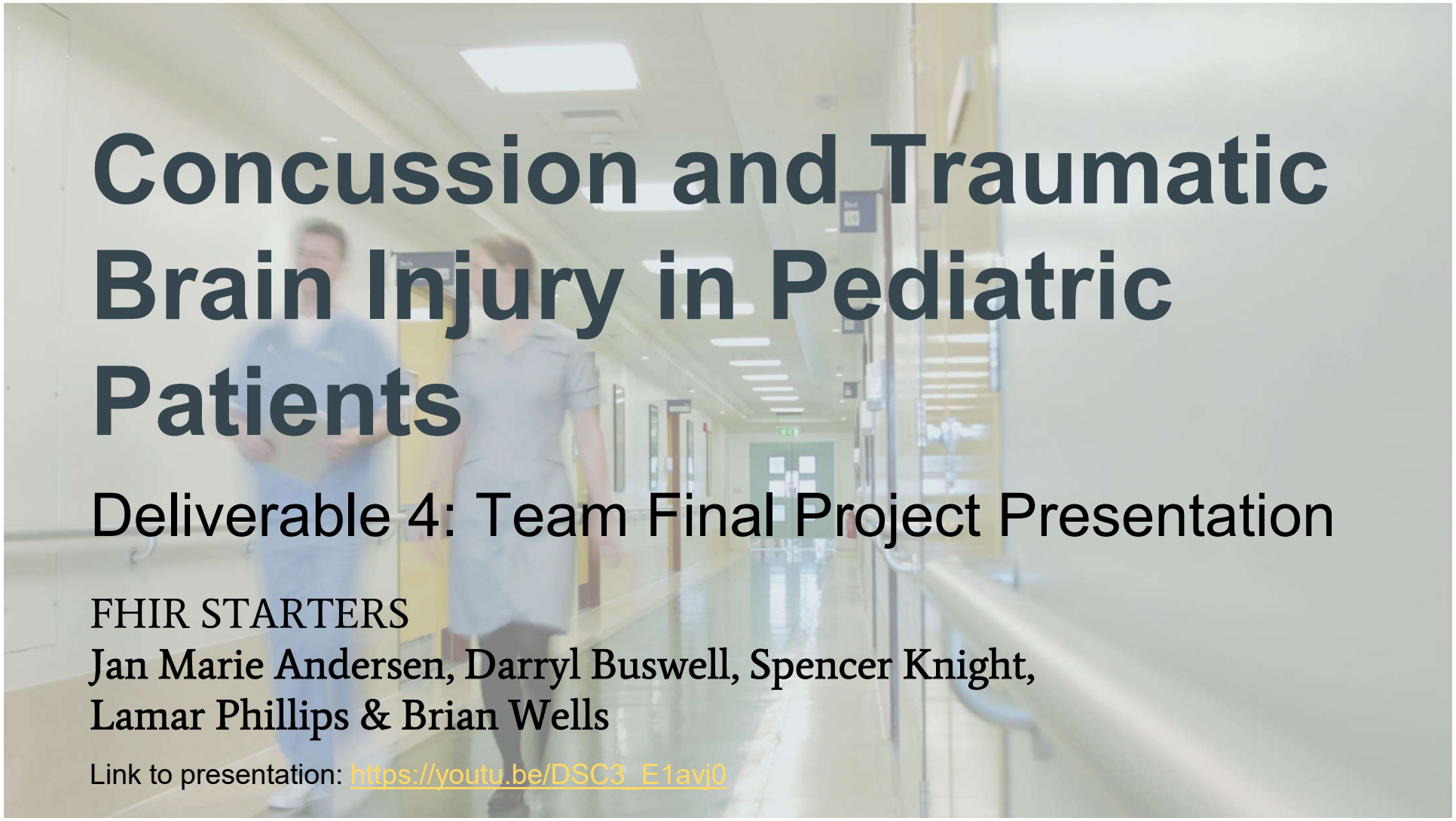


Concussion and Traumatic Brain Injury in Pediatric Patients

Deliverable 4: Team Final Project Presentation

FHIR STARTERS
Jan Marie Andersen, Darryl Buswell, Spencer Knight,
Lamar Phillips & Brian Wells

Link to presentation: https://youtu.be/DSC3_E1avj0

Background

- Increase in the number of pediatric patients with mild traumatic brain injury (mTBI)
- Healthcare providers don't have the time or training to appropriately assess patients with mTBI
- No recognized framework for healthcare providers to follow when making decisions about how to diagnose and manage mTBI in pediatric patients.

Our objective

To develop a provider interface that provides clinical decision support to facilitate management of mTBI in children

The FHIR Starters

Darryl Buswell

Project Manager

Brian Wells

Developer

Jan Marie Andersen

QA, Developer

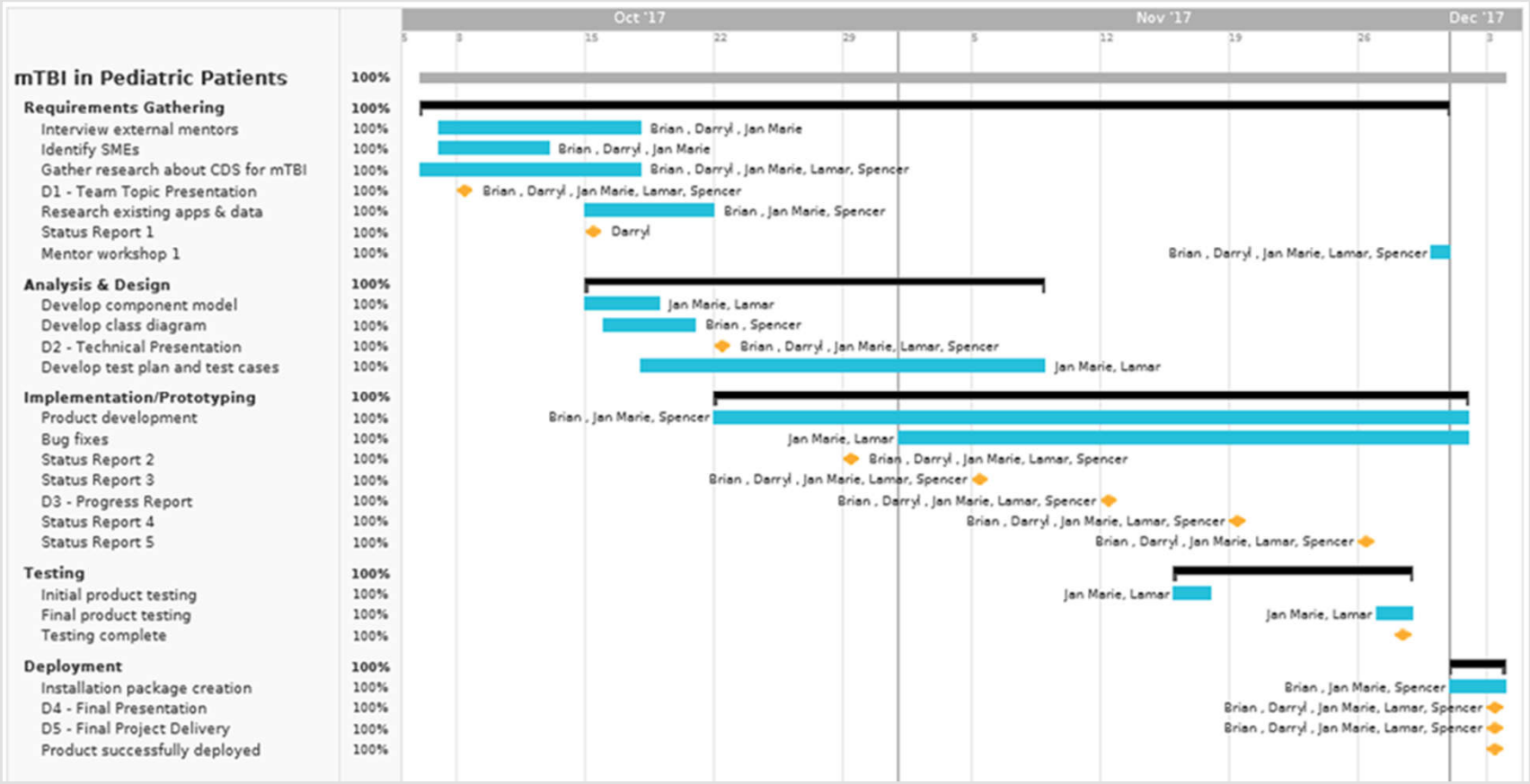
Lamar Phillips

QA

Spencer Knight

Developer

Gantt Chart


Oct '17
Nov '17
Dec '17
5
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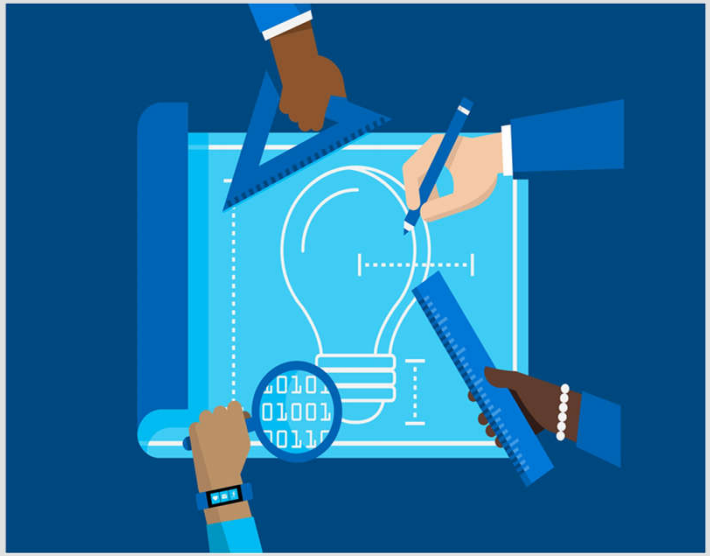
3
mTBI in Pediatric Patients 100%
Requirements Gathering 100%
Interview external mentors 100% Brian , Darryl , Jan Marie
Identify SMEs 100% Brian , Darryl , Jan Marie
Gather research about CDS for mTBI 100% Brian , Darryl , Jan Marie, Lamar, Spencer
D1 - Team Topic Presentation 100% Brian , Darryl , Jan Marie, Lamar, Spencer
Research existing apps & data 100% Brian , Jan Marie, Spencer
Status Report 1 100% Darryl
Mentor workshop 1 100% Brian , Darryl , Jan Marie, Lamar, Spencer
Analysis & Design 100%
Develop component model 100% Jan Marie, Lamar
Develop class diagram 100% Brian , Spencer
D2 - Technical Presentation 100% Brian , Darryl , Jan Marie, Lamar, Spencer
Develop test plan and test cases 100% Jan Marie, Lamar
Implementation/Prototyping 100%
Product development 100% Brian , Jan Marie, Spencer
Bug fixes 100% Jan Marie, Lamar
Status Report 2 100% Brian , Darryl , Jan Marie, Lamar, Spencer
Status Report 3 100% Brian , Darryl , Jan Marie, Lamar, Spencer
D3 - Progress Report 100% Brian , Darryl , Jan Marie, Lamar, Spencer
Status Report 4 100% Brian , Darryl , Jan Marie, Lamar, Spencer
Status Report 5 100% Brian , Darryl , Jan Marie, Lamar, Spencer
Testing 100%
Initial product testing 100% Jan Marie, Lamar
Final product testing 100% Jan Marie, Lamar
Testing complete 100%
Deployment 100%
Installation package creation 100% Brian , Jan Marie, Spencer
D4 - Final Presentation 100% Brian , Darryl , Jan Marie, Lamar, Spencer
D5 - Final Project Delivery 100% Brian , Darryl , Jan Marie, Lamar, Spencer
Product successfully deployed 100%

Initial Goals and Achievements

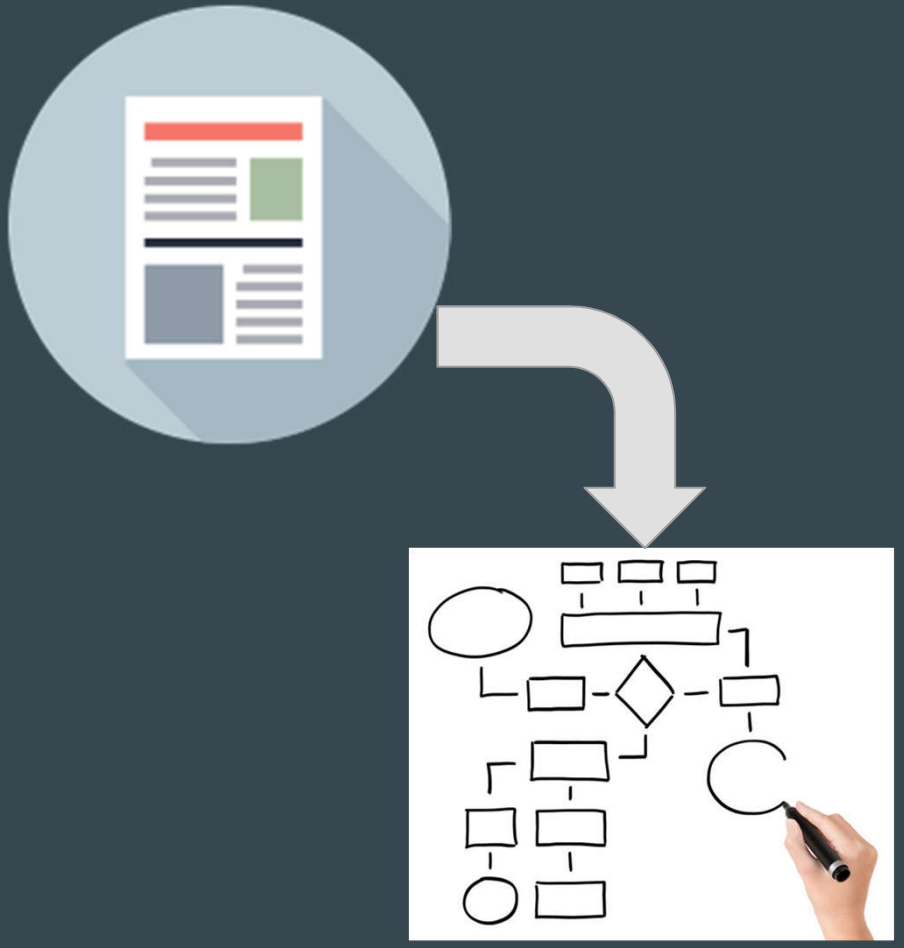
Initial Goal	Status
1. Provider interface to CDS system	Complete; Ready for future expansion
2. Evidence-based decision support	Complete; Customizable and ready for additional rules
3. Development process: research, flowcharts, test plans, status reports, Docker packaging, etc	Complete
4. FHIR-enabled data reading	Framework in place; contingent on identification of appropriate FHIR resources
5. Patient-facing web app for monitoring, communication, and followup	Future Work

Key project facets



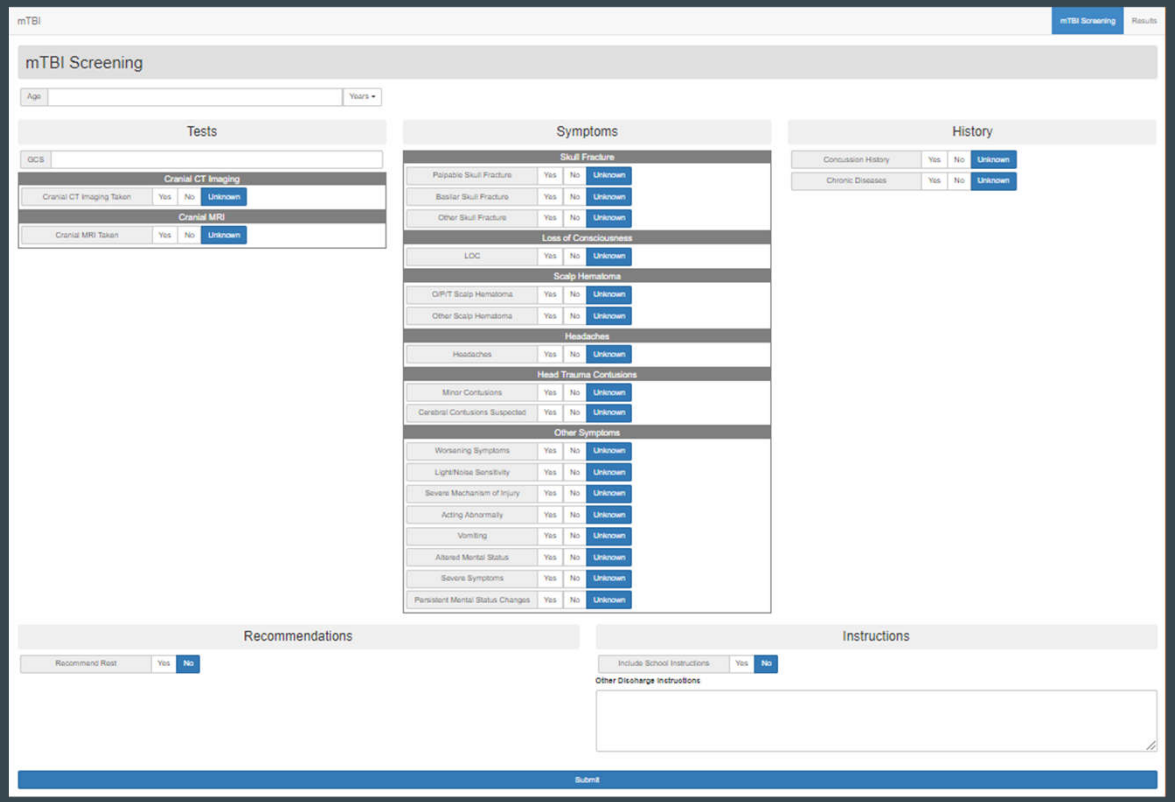
Research

- Reviewed best practice in mTBI management
- Developed clinical decision support flowcharts
- Flowcharts were reviewed by our mentors and mTBI subject matter experts.



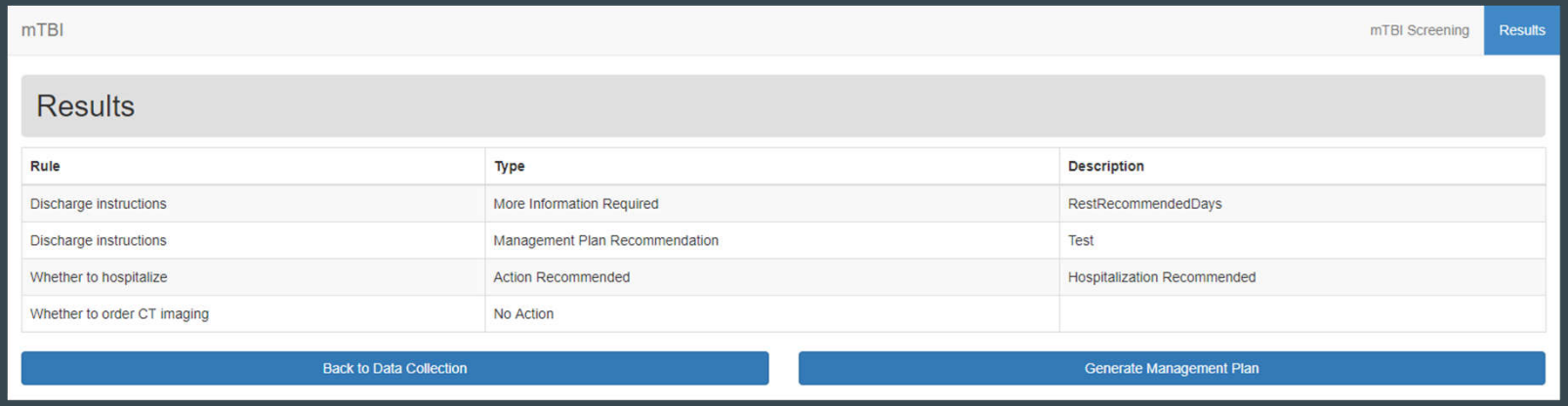
Functionality

- Final app is fully functional in terms of CDS, data collection, and output
- FHIR software support is in place but more work is needed to identify resources



Usability & Design

- The user interface is uncluttered, straightforward, and easy to use
- A manual has been developed which describes how to effectively use the app



Innovation

- Easy addition of new CDS rules and customization of existing rules in response to new research and guidelines
- Easy addition of new data items to support new CDS rules

mTBI app demonstration

“This tool will make an impact on clinical practice for Traumatic Brain Injury by providing clinical decision support for healthcare providers in a variety of care settings that include emergency departments, urgent care and primary provider practices”.

- *Juliet Haarbauer-Krupa, PhD, Senior Health Scientist, Division of Unintentional Injury Prevention*

Future Project Plans and Opportunities

- Uploading app to CDC GitHub repository
- Mentor hand-over
- Further review by subject matter experts
- Patient-facing web app for monitoring, communication, and followup

Thank You!

This was an exciting and engaging project.

We have endeavored to provide easy expansion and hope the future work will make the project even more useful.