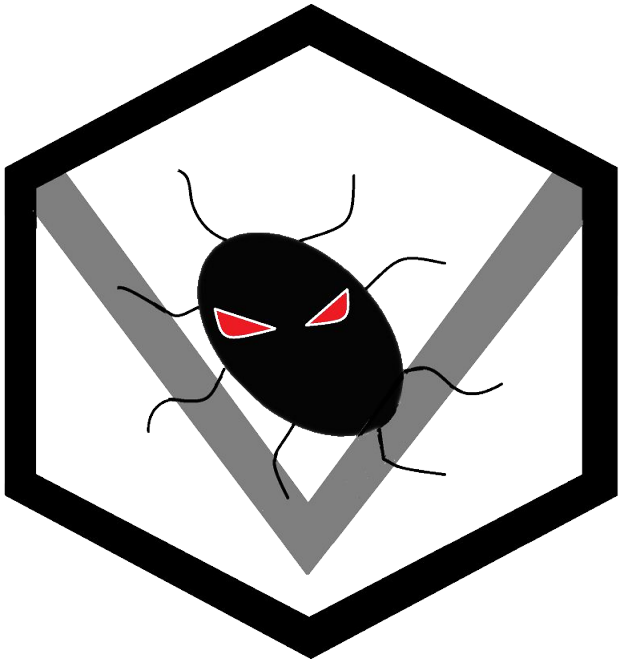
# PIMS2.0 Collaborator Data Entry Point

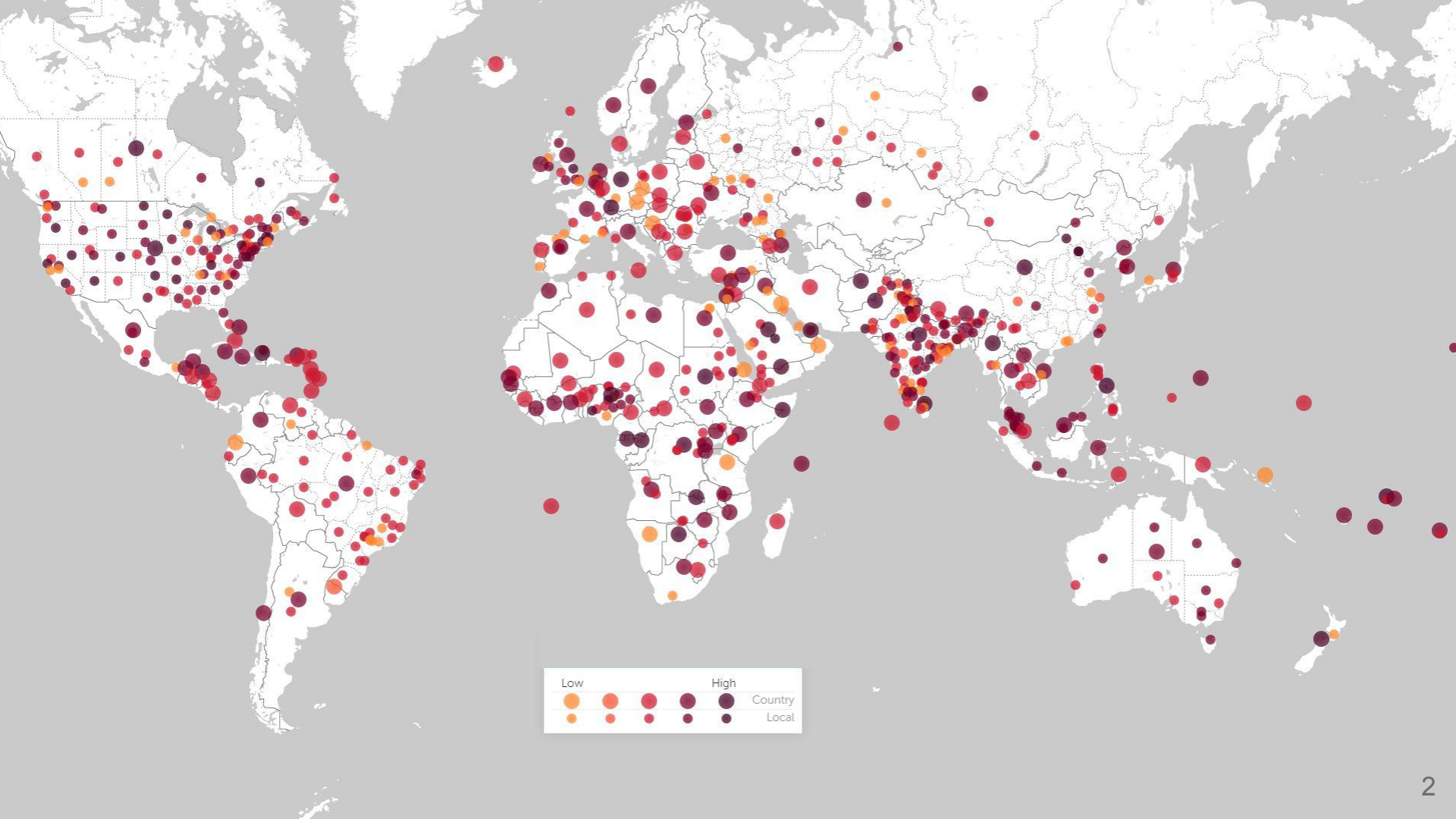


VIRALTECH

Sponsor - TGen North

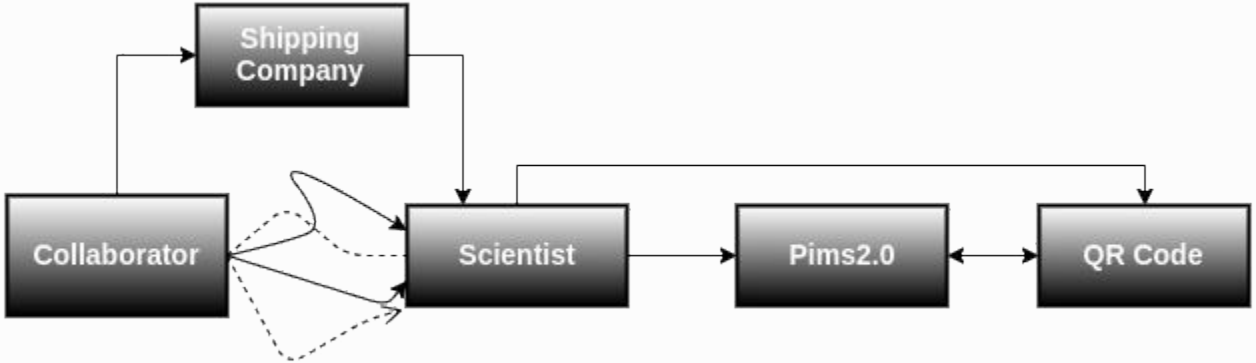
Capstone Mentor - Scooter Nowak

Jialei Chen, Carl Porter, Colton Spector, Weiheng Su


Low
High
Country
Local

**Jonathon Todd**
Associate Bioinformatician

# TGEN North Current Workflow

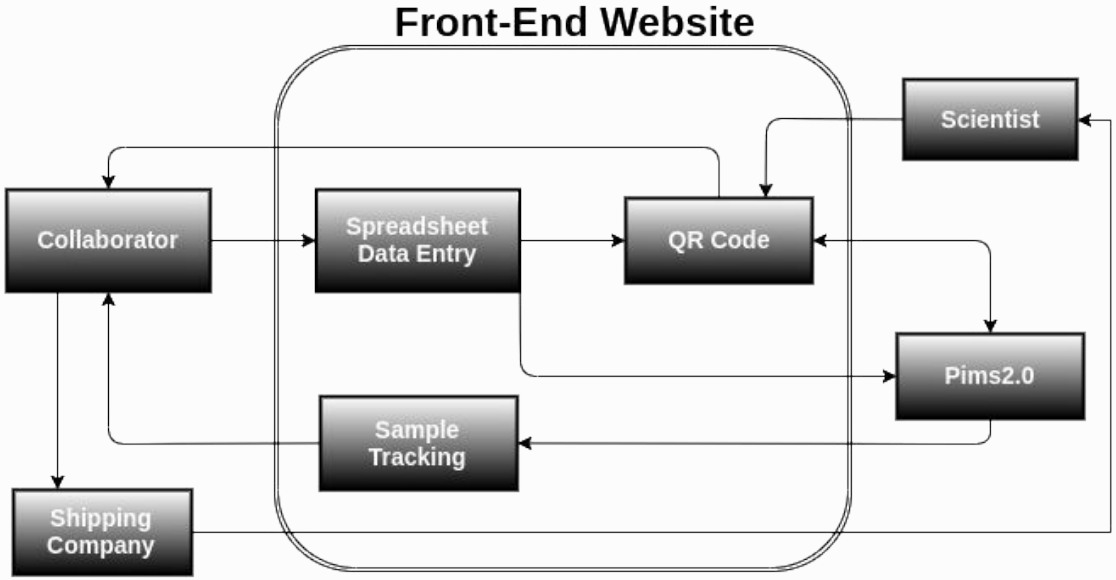


# Project Problem Statement

- Manual data entry done by scientists
- Non-standardized data collection
- Collaborators are unable to track the progress of their samples once they've sent them to TGEN

# Solution Overview

- Outline



# Key Features of the Solution

- Scientists do not manually input data
- Standardized data collection
- Collaborators are able to track the progress of their samples

# Requirements Acquisition

- Emails
- Meeting every other week in TGens facility
- Tour of the facility and examples of workflow
- Iterative conceptual prototyping process with client

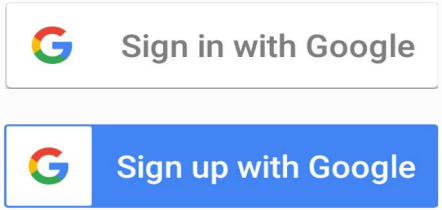
# Formal Requirements Summary

- Functional requirements pulled from conceptual prototyping mockups
- Non-functional requirements are pulled from TGENs existing non-functional requirements for their internal systems.
- Website specific non-functional requirements will be generated based on reasonable user efficiency metrics for accessing and viewing data

# Key High Level Requirement: Secure Login

**Functional Requirement Examples:**

- Collaborators can securely sign into the website
- Collaborators can sign up without creating a new account
- Collaborator passwords stored outside of TGEN database



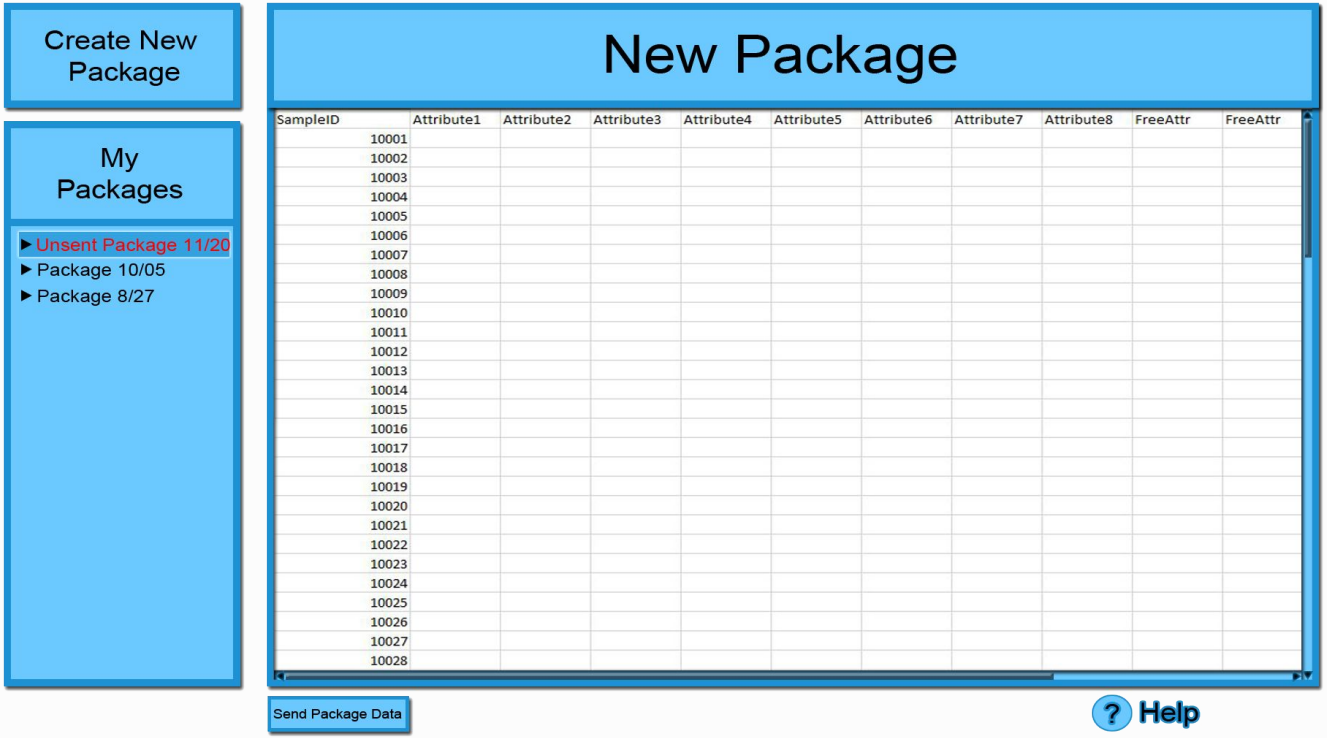

**Environmental Constraint:**

- Client dictated using Google authentication

# Key High Level Requirement: Data Entry

**Functional Requirement Examples:**

- Collaborator can enter data in a spreadsheet format
- Spreadsheets are configurable for each individual collaborator
- Spreadsheet data entry is expandable for clients with sufficient permissions



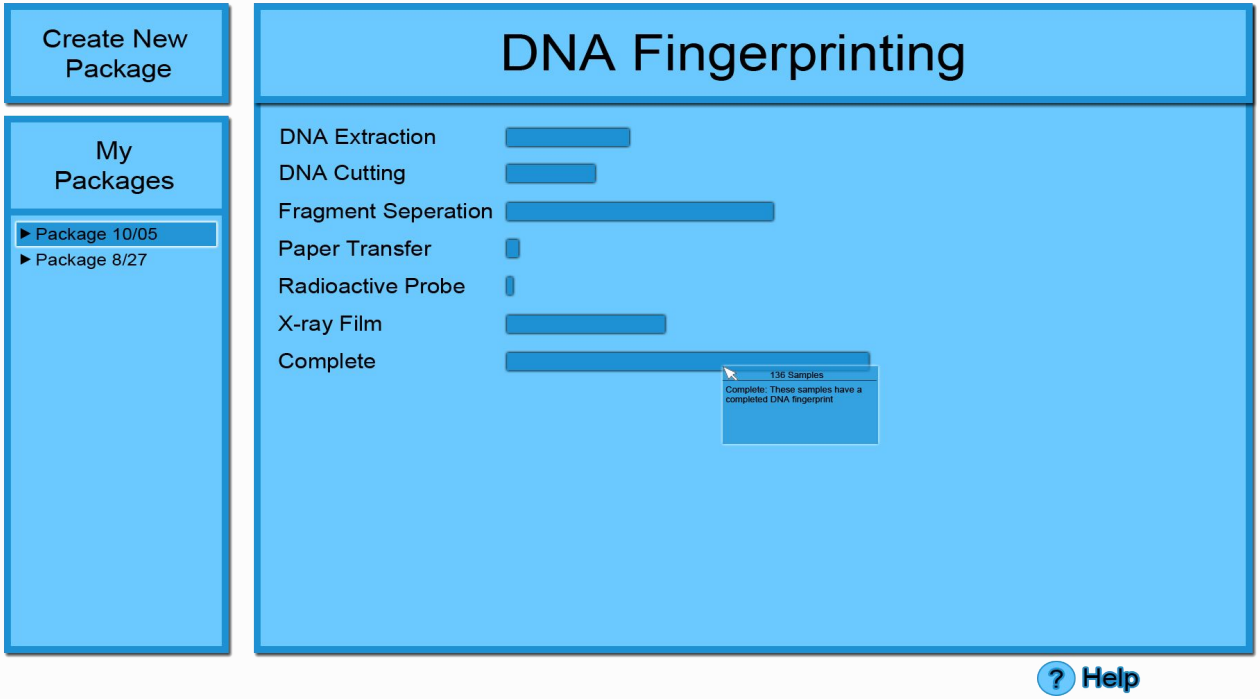
# Key High Level Requirement: Sample Tracking

**Functional Requirement Examples:**

- Collaborator can view sample progress through various processes
- Collaborator can see samples at each step aggregated into bar chart
- Tracking is configurable for individual clients

**Non-Functional Requirement Examples:**

- Collaborator can see find sample tracking in less than 5 seconds after login



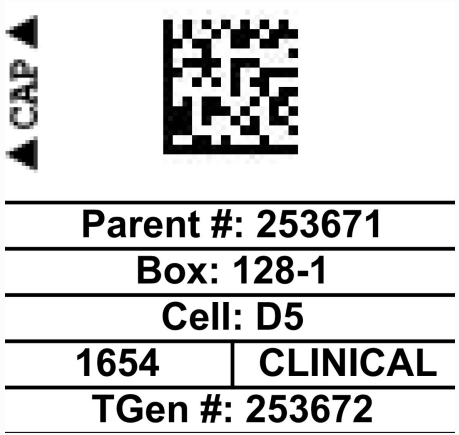
# Key High Level Requirement: QR Code

**Functional Requirement Examples:**

- Collaborator doesn't have to download QR code
- Collaborator can print QR codes that are able to fit easily onto test tubes
- Scientists are able to scan QR code to pull up all sample information on their terminal

**Non-Functional Requirement Example**:

- Collaborators are prompted to print PDF version of QR codes in less than 2 seconds after submitting data



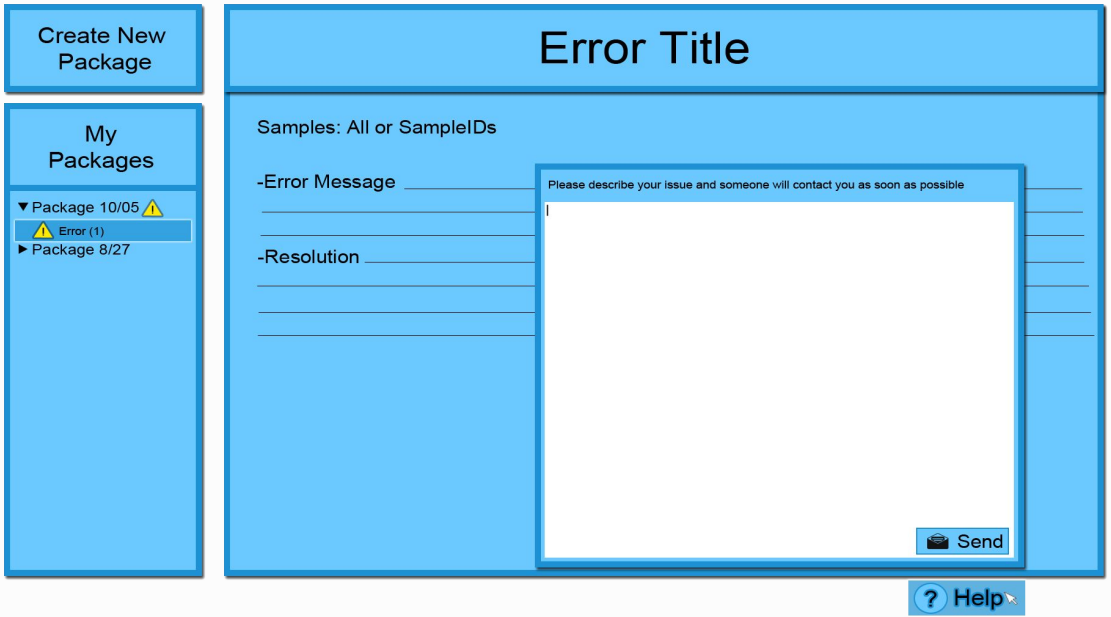
# Key High Level Requirement: Error Handling

**Functional Requirement Examples:**

- Collaborators can see error text when there is an issue with one of their samples
- Collaborators can see the affected sample IDs when there is an error
- Collaborators can send help messages to TGEN
- TGEN Employees can see the state of the website included in the error message

**Non-Functional Requirement Example:**

- Collaborator notices an error in one of their packages within 2 seconds of logging in



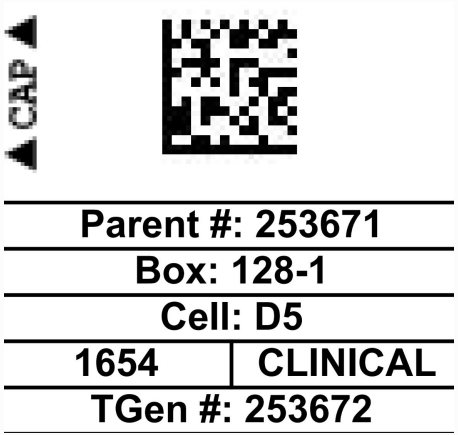
# Risks & Feasibility

## Challenges

- QR or UPC Barcode Generator
- Google Authentication
- Web Data Entry Spreadsheet

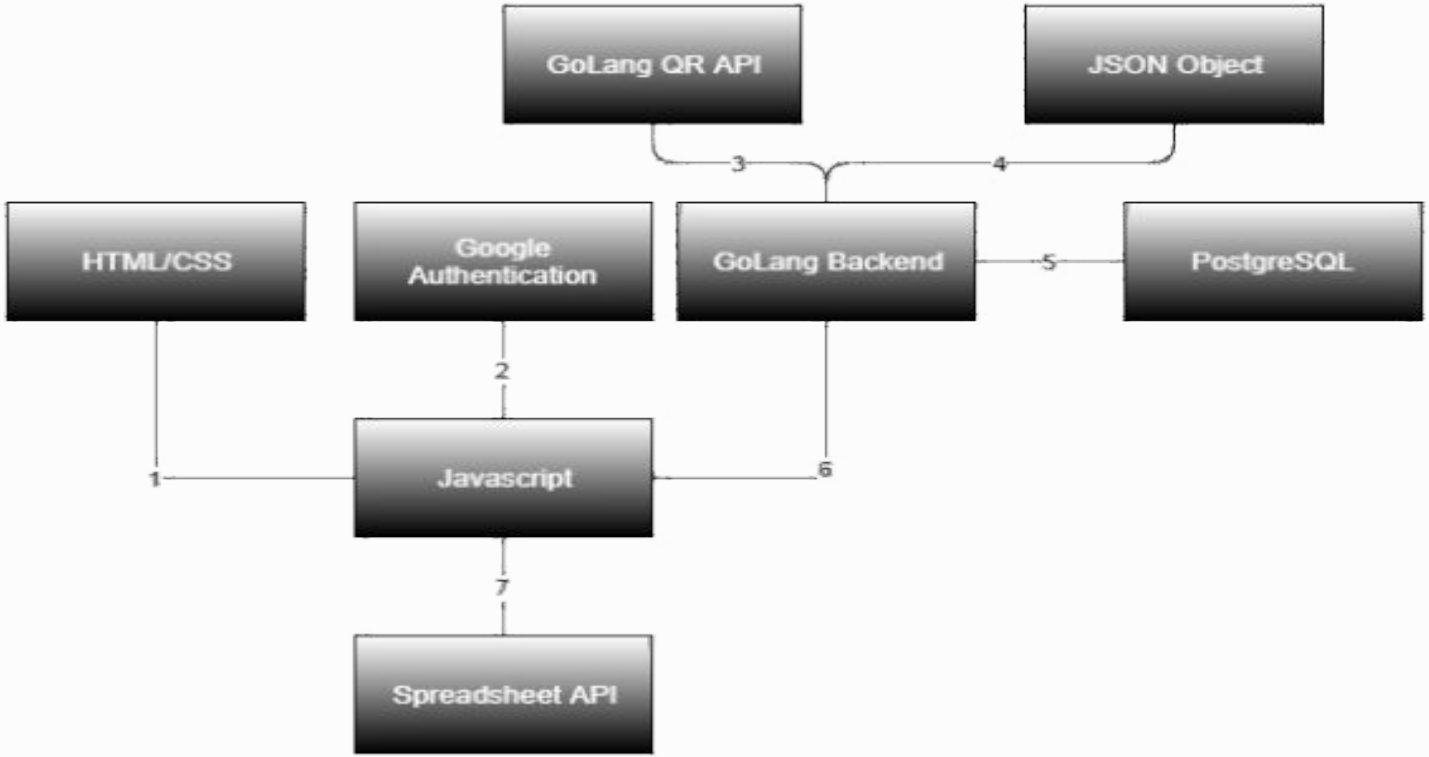
## Feasibility

- Google Authentication - user data is protected from outside individuals
- Spreadsheet data entry - user to input many samples at the same time. in different.

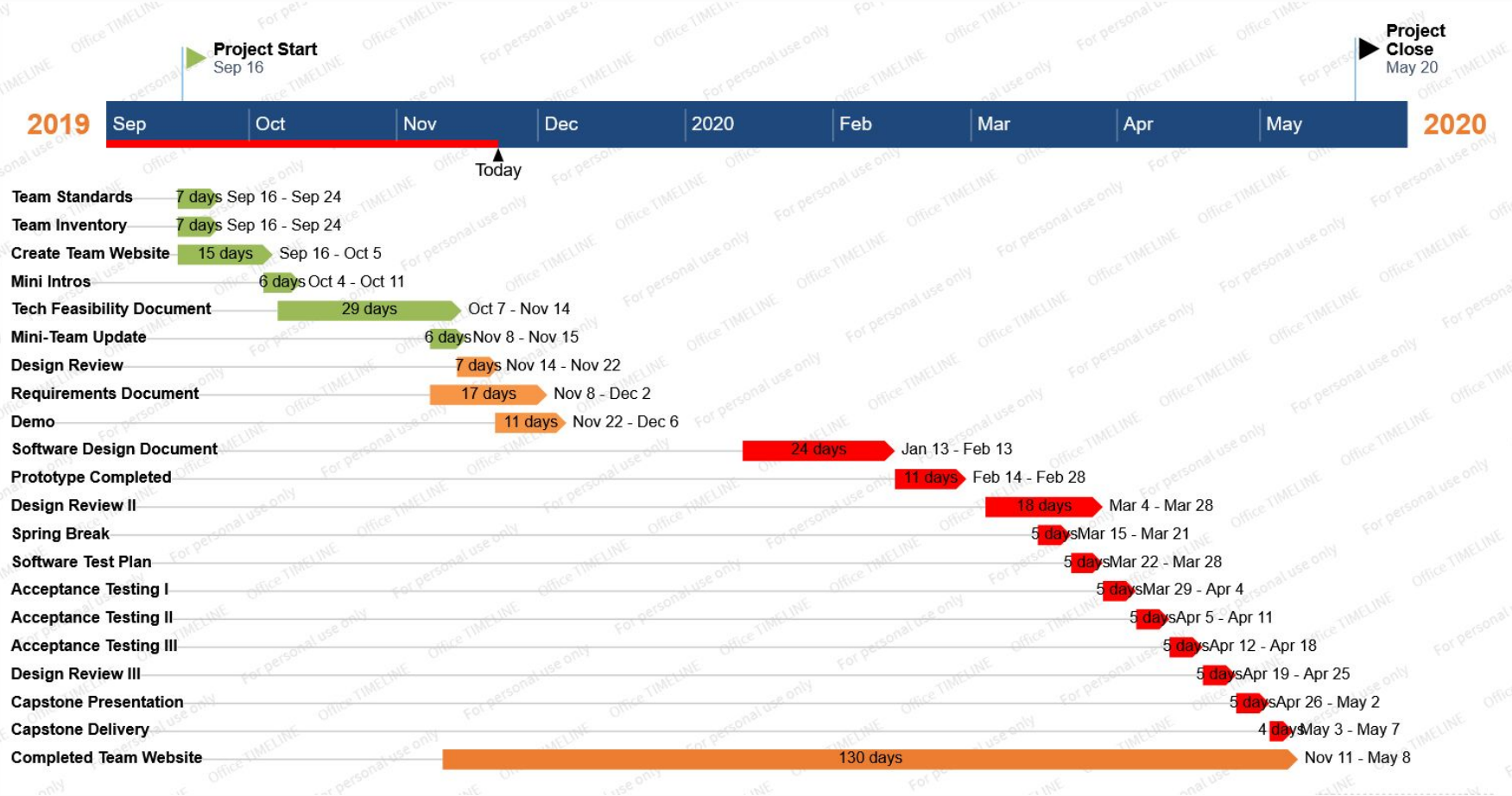


# Risks

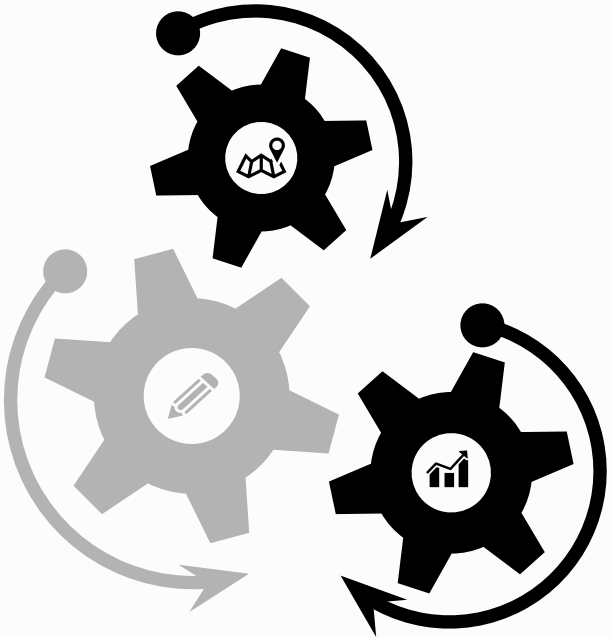
| Risk | Severity | Likelihood | Amelioration Plan |
|---|---|---|---|
| Back-end language options issue | Medium | High | Go language |
| Front and Back Connection Failure | High | Low | API and JavaScript |


GoLang QR API
JSON Object
3
4
HTML/CSS
Google Authentication
GoLang Backend
5
PostgreSQL
2
1
Javascript
6
7
Spreadsheet API

# Schedule

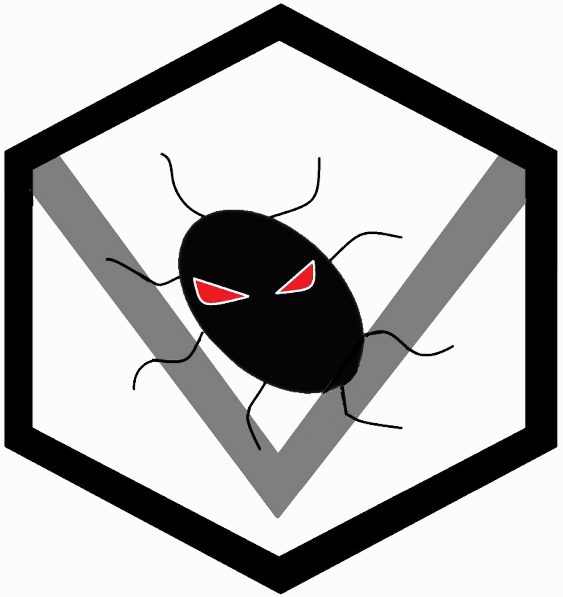

Project Start
Sep 16
Project Close
May 20
2019
Sep
Oct
Nov
Dec
2020
Feb
Mar
Apr
May
2020
Today
Team Standards 7 days Sep 16 - Sep 24
Team Inventory 7 days Sep 16 - Sep 24
Create Team Website 15 days Sep 16 - Oct 5
Mini Intros 6 days Oct 4 - Oct 11
Tech Feasibility Document 29 days Oct 7 - Nov 14
Mini-Team Update 6 days Nov 8 - Nov 15
Design Review 7 days Nov 14 - Nov 22
Requirements Document 17 days Nov 8 - Dec 2
Demo 11 days Nov 22 - Dec 6
Software Design Document 24 days Jan 13 - Feb 13
Prototype Completed 11 days Feb 14 - Feb 28
Design Review II 18 days Mar 4 - Mar 28
Spring Break 5 days Mar 15 - Mar 21
Software Test Plan 5 days Mar 22 - Mar 28
Acceptance Testing I 5 days Mar 29 - Apr 4
Acceptance Testing II 5 days Apr 5 - Apr 11
Acceptance Testing III 5 days Apr 12 - Apr 18
Design Review III 5 days Apr 19 - Apr 25
Capstone Presentation 5 days Apr 26 - May 2
Capstone Delivery 4 days May 3 - May 7
Completed Team Website 130 days Nov 11 - May 8

# Conclusion



- Our Sponsor is TGen North
- TGens Problem
- Our High Level Requirements
- Our Solution

# Questions?



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