FRC Scouting Web

Data Collection/Presentation

THE ISSUES WITH TRADITIONAL METHODS

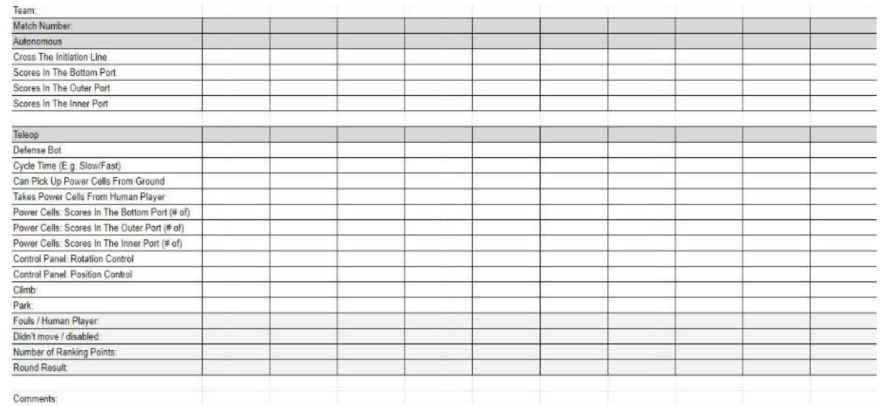
Fragmented paper/forms → slow, inconsistent decisions

Hard to see trends across several matches/teams

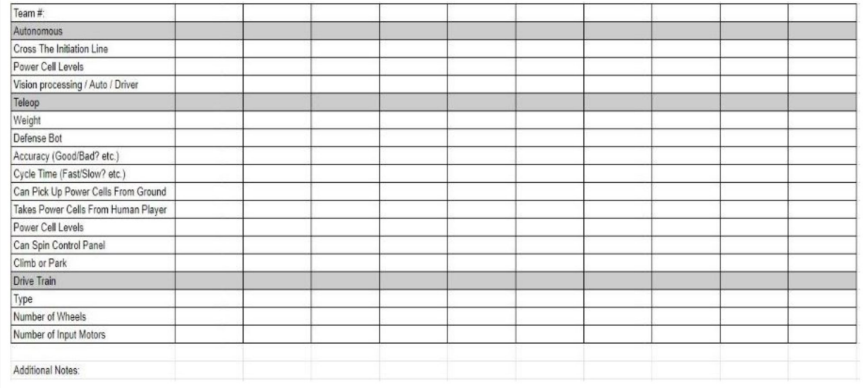
Static, messy, difficult to make changes

Manual copy/paste from external sites to messy spreadsheets

Qualitative notes get lost, not tied to stats/quantitative data from external sources



Team:										
Match Number:										
Autonomous										
Cross The Initiation Line										
Scores In The Bottom Port										
Scores In The Outer Port										
Scores In The Inner Port										
Teleop										
Defense Bot										
Cycle Time (E.g. Slow/Fast)										
Can Pick Up Power Cells From Ground										
Takes Power Cells From Human Player										
Power Cells: Scores In The Bottom Port (# of)										
Power Cells: Scores In The Outer Port (# of)										
Power Cells: Scores In The Inner Port (# of)										
Control Panel: Rotation Control										
Control Panel: Position Control										
Climb:										
Park:										
Fouls / Human Player:										
Didn't move / disabled:										
Number of Ranking Points:										
Round Result:										
Comments:										

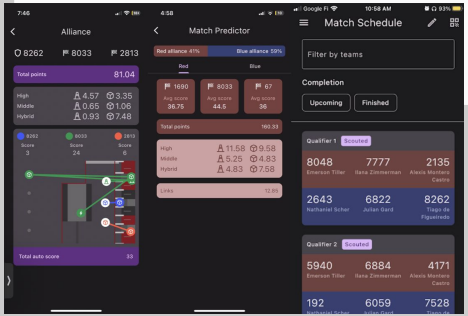


Team #:										
Autonomous										
Cross The Initiation Line										
Power Cell Levels										
Vision processing / Auto / Driver										
Teleop										
Weight										
Defense Bot										
Accuracy (Good/Bad? etc.)										
Cycle Time (Fast/Slow? etc.)										
Can Pick Up Power Cells From Ground										
Takes Power Cells From Human Player										
Power Cell Levels										
Can Spin Control Panel										
Climb or Park										
Drive Train										
Type										
Number of Wheels										
Number of Input Motors										
Additional Notes:										

STAGES OF SCOUTING SYSTEMS WITH A WEB-BASED APPLICATION

Data Collection (Frontend)

- Mobile responsive forms and dashboards
- Scouts submit match data, performance (mostly quantitative) through Stand Scouting
- Scouts submit recordings/interviews/videos from Pit Scouting other team's bot (mostly qualitative)
- Coaches gets live update through website refreshes



Team 8033 Galileo interface

Storage (Backend)

- Authentication/Account system for only SSIS workspace emails
- API and Webhooks for additional data collections from Blue Alliance
- SQL for DataBase, tracking team's information, matches, scout entries, notes and any metrics

Analysis

Have a subsection on website dedicated for data summary

Pivot tables, algorithms that evaluates scout entries data

Provide reliability scores, offensive/defensive power rating for different teams (for later alliance matching)

Data points to collect each match

1 General Information

Match Number

Team Number (All 6)

If possible, list out names/contact information for each team's representative

Alliance/Station

Where each teams are located, current alliances if in elimination rounds

2 Standing Scout

Auto and Driver performance

Auto success (Y/N)
Auto pieces collected
Teleop pieces collected

Stradegy

Preferred scoring location
Defense Rating (None/Light/Heavy)
Offense Rating (None/Light/Heavy)
Fouls committed
Endgame (Success/Fail)

Additional short notes (dependent)

Cycle time (sec)
Usual movement path
Penalties

3 Pit Scout

Bot's design and schemas

Drivetrain type
Intake design
Auto programs available
Mechanisms for endgame

Human

Take notes on team's personality, adequate to work with or not
Take text notes (tags for organization)

Methods

Photos, audio recordings, videos, all will be through the web applications

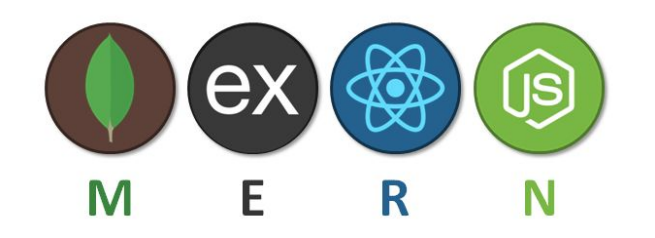
Structure And Advantages

Structure for development stack

Frontend: React + Next.js
Backend: Node/Express
DB and Auth: Supabase/Firebase
Hosting: Vercel (frontend),
Supabase(DB)

Advantages

Most inclusive, easiest to access (requires Connection and browse)
Ease for data transfer and updates
Optimal learning curve for scouting
For beginners



Web Page structure

Stand Scouting Form section

Mobile/Tablet friendly, for mainly Quantitative data collection

Website integrated with FRC API to track details of current matches

Can pre-assign scouts for future Match through page

Pit Scouting Form section

Mainly qualitative data collection

Buttons for video recording, photos upload for tabs of each teams

Audio/voice recording for interviews

Text based responses to keep track of team's contact info or notes

Data Analytics section

Algorithms to rate potential matches for alliance (through scouting data)

Team's evaluation page, summarizes statistics to conclude team's main strategies

Rank teams based on numerical/qualitative factors

Data/Info section

Include all data/information provided by Blue Alliance API, FRC API on concurrent match data and ranking

Contains database that updates periodically