

TeamTactix - Panther Racing

AUTh Innovation 2021-2023

TeamTactix: The Tactical Advantage for Racing Teams.	2
Preface or Starting condition	2
How it works	2
Must have features	3
Roles	4
Adapter for telemetry system	4
Setup	5
Realtime data sharing	5
Weather	5
Data visualization	6
Chat	6
Media	7

TeamTactix: The Tactical Advantage for Racing Teams.

TeamTactix is the ultimate solution for racing teams looking to gain a tactical advantage over their competitors. With comprehensive data and analytics, TeamTactix allows teams to make informed decisions and optimize performance on the track and beyond. From planes to motorcycles to Formula 1, TeamTactix offers a universal solution for teams in any motorsport, providing everything teams need in one convenient location. By creating a streamlined process for strategy development, TeamTactix helps teams reduce the time it takes to make informed decisions, while also providing a log of actions that can be used to learn from past successes and failures.

Preface or Starting condition

During final events or testing sessions, a dearth of organization has been observed especially in teams with little to no experience. The information requires a lot of time to spread through the whole team and a lot of misinterpretations happen. Furthermore, in oral discourse keeping track of the accounting seems impossible since a vast amount of information can be communicated in a matter of seconds. In addition, the lack of proper documentation and communication channels makes it difficult for team members to stay updated and on the same page. This leads to a delay in decision-making and implementation, which can have a negative impact on the overall progress of the team's score. TeamTactix was designed to help data distribution across the team, enhance communication, make it better and faster and maintain a record of what occurred, when it appened, and who was involved. It also aims to improve the overall organization during events or testing sessions by allowing the team to access and share information quickly and efficiently. With TeamTactix, teams can reduce misinterpretations and ensure that everyone is on the same page, leading to more effective decision-making and problem-solving. The application follows the AAA system; Authentication, Authorization, and Accounting, a three-process framework used to manage user access, enforce user policies and privileges, and track any user related involvement

How it works

To unlock its full potential, the application is supported by a specific workflow and task assignment. All engineers are divided into three groups which we call "Gods", 'Brains' and "Hands". The "Gods" team consists of the chief engineer and the driver, the 'Brains' team includes the engineers who analyze the data, and the "Hands" team are the engineers who make changes to the prototype. In an ideal scenario the rider enters the pit box, the electronics engineer collects the recorded

data and uploads it to the cloud. At the same time, the “Gods” team comes together and comments on the bike's behavior while the “Brains” team listens. After receiving feedback, each person accesses the data from their own device, analyzes it and makes a recommendation on what needs to be changed to improve performance through the app. Each suggestion is visible to the chief engineer through a custom dashboard that filters them based on the department the suggestion affects. While the chief reviews the proposals, the Hands team performs the regulatory health checks and reports any issues that also need to be addressed. With all this information at their disposal, the chief is now in a position to accept one or more changes to be made and send the rider back to the track. Of course, all suggestions and setting changes can be accessed at any time as a log file for review and further refinement.

Must have features

For the reported problems to be solved, in the TeamTactix application the following features are implemented:

Cloud application

TeamTactix is a cloud-based application, easily accessible on both desktop and mobile devices at the same time provided that there is an internet connection and a compatible web browser. This provides the user with a consistent experience across devices, making all features and functionalities available through different operating systems.

Cross-platform

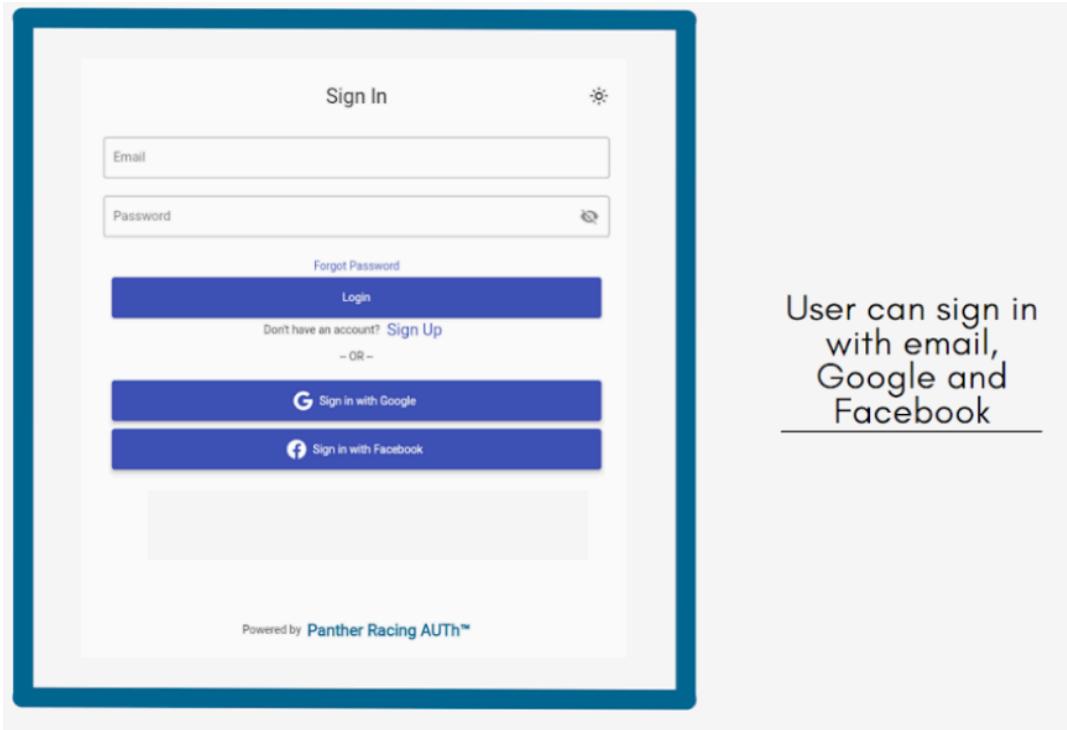


As an application, it can be installed on multiple platforms such as Windows, macOS and IOS, Linux and Android in order to be available from any location and device without the requirement of local installation. By doing so, users were able to access their data from any location, whether they were at home or on the go, making the application more convenient. As a mobile application, it is designed for both Android and IOS devices, considering the different features and capabilities of each

platform. It has been improved ensuring better performance and a more user-friendly environment.

Login

A Login Feature has been incorporated into the application. This enables users to create an account by submitting an email and password or signing in through Google or Facebook.



Roles

Upon account creation, users are granted their own profile, and roles are assigned by the team's administrator. The roles that a user can hold are Admin, Chief engineer, Race engineer, Data analyst, Hands on Engineer and Default. Depending on their role, users have access to certain features that refer to what the user needs to carry out their tasks.

Adapter for telemetry system

Data from the motorcycle can be transferred and uploaded into the TeamTactix application seamlessly, allowing users to manage and track their information

quicker and more efficiently. The process of uploading the data is straightforward and by analyzing them with the use of the various features incorporated in the application, engineers gain multiple pieces of information in order to improve their motorcycle performance, fuel consumption, and other relevant metrics. This feature is extremely beneficial to the team, as it helps them ascertain the areas that require improvement and make knowledgeable decisions about their motorcycle maintenance and enhancement of its performance.

Setup

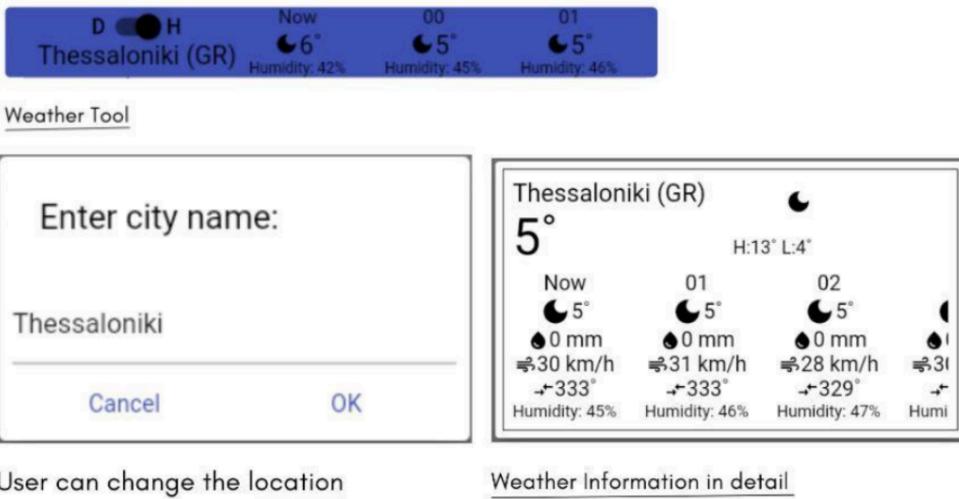
The integrated Setup feature in the application is of utmost importance. The whole vehicle setup can be uploaded in the application, encompassing all systems with their subsystems and parts, including their specifications. The setup of the vehicle can be known at any time, allowing engineers to make decisions based on the information received. It is worth noting that the setup Feature is not motorcycle-constricted. Any vehicle can be inserted into the application which allows the application to reach a broader audience.

Realtime data sharing

As mentioned previously, the ability to share real-time data is an important feature of the application. All data from the motorcycle sensors can be constantly uploaded, updated and accessed by the engineers. By accessing real-time data, engineers can monitor motorcycle performance during race or testing sessions and easily identify any issues or areas of improvement.

Weather

The application includes real-time weather data that can be accessed by all users. These data are crucial for the team to make decisions regarding the motorcycle and include information such as temperature, humidity, and airspeed for each hour.

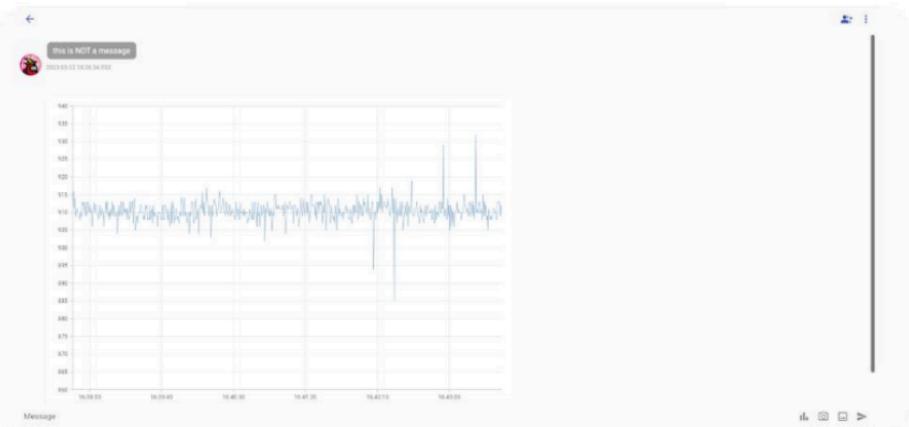


Data visualization

The uploaded up-to-date data are visualized in the application, so that engineers can have an interactive and comprehensive view of them. The motorcycle data is represented in chart format, providing different options for user's preference. The chart feature provides users with options such as choosing the data they wish to visualize and the intervals in which they want to view it. This results in an easier way of analyzing trends and patterns and helps the engineers to have a better picture of the data, increasing their ability to provide more precise information to the chief engineer about their decisions.

Chat

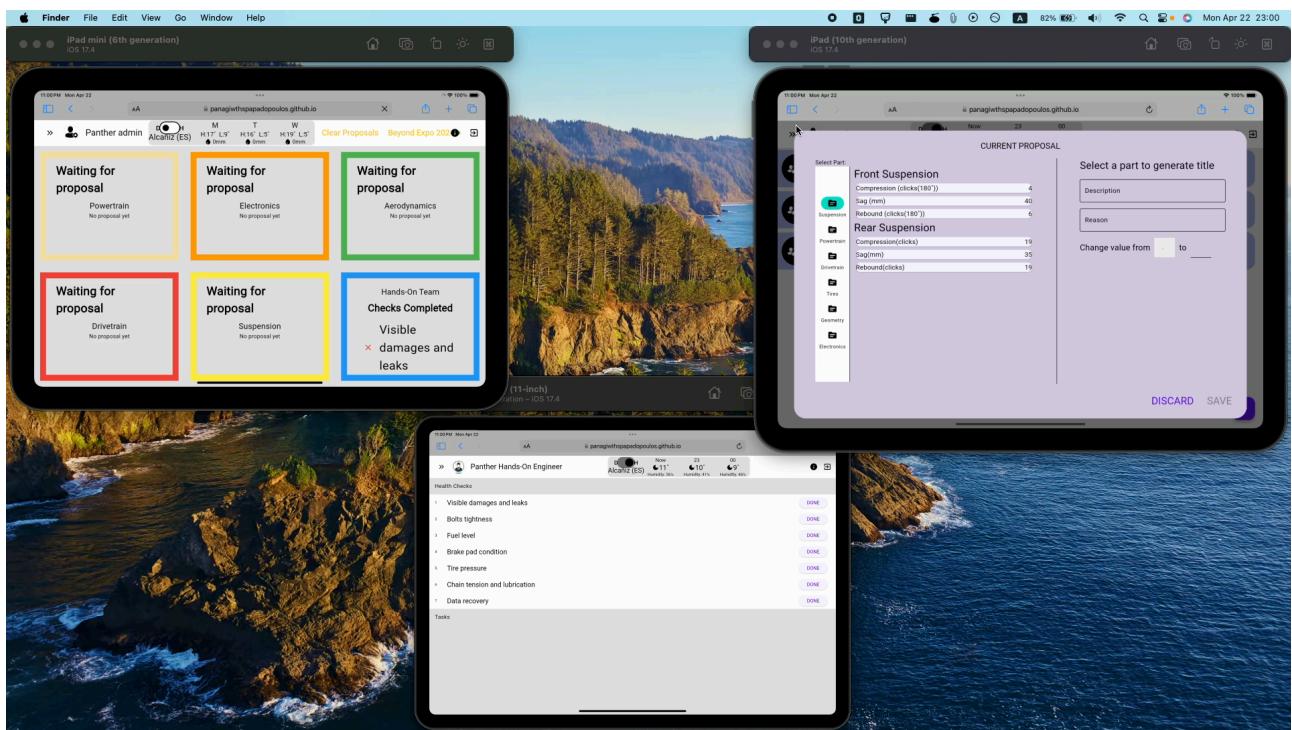
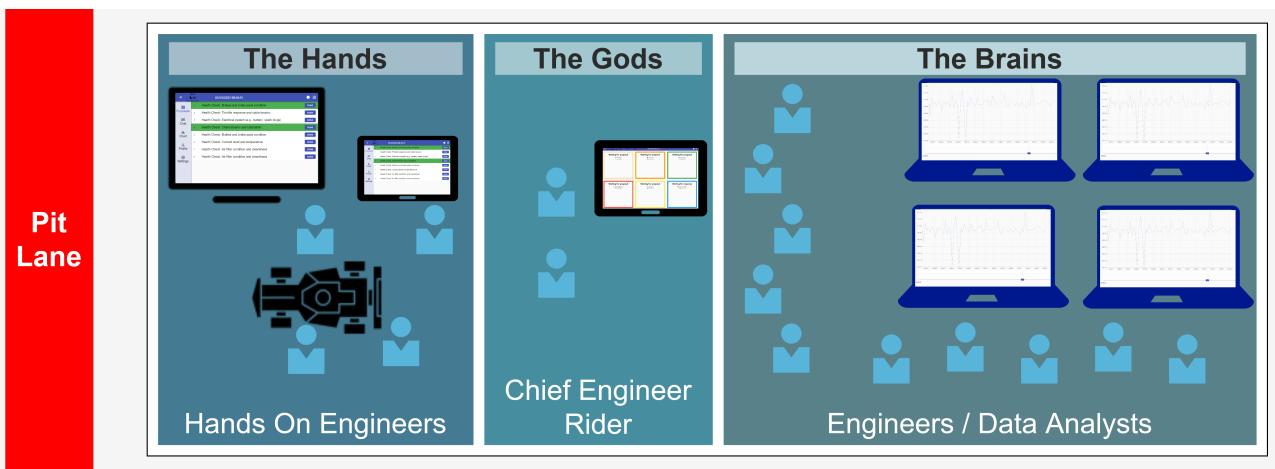
In order for data to be disseminated to different groups and to achieve effective communication between the engineers, the application has incorporated a chat feature. Engineers from different groups are enabled to share motorcycle data inside the chat in a form of charts, similar to code snippets for programmers. Engineers are able to choose the exact chart they want to share, selecting the correct sensor data and interval they are referring to. Chat also allows engineers to send text messages if they wish to add a note clarifying their decisions and is a well-organized way of maintaining the history of the changes that have occurred. Here is an example of the chart snippets engineers can send to chat:



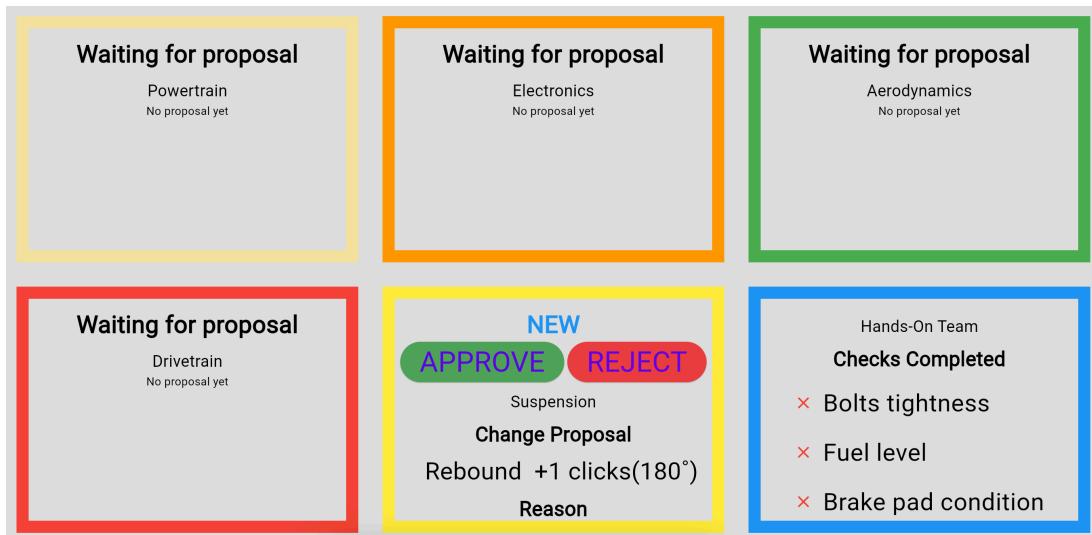
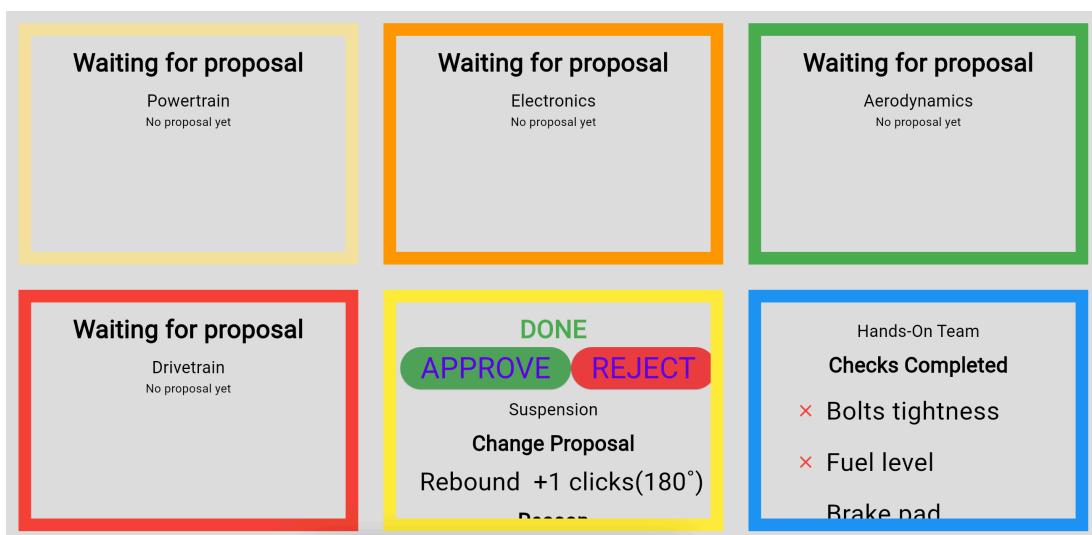
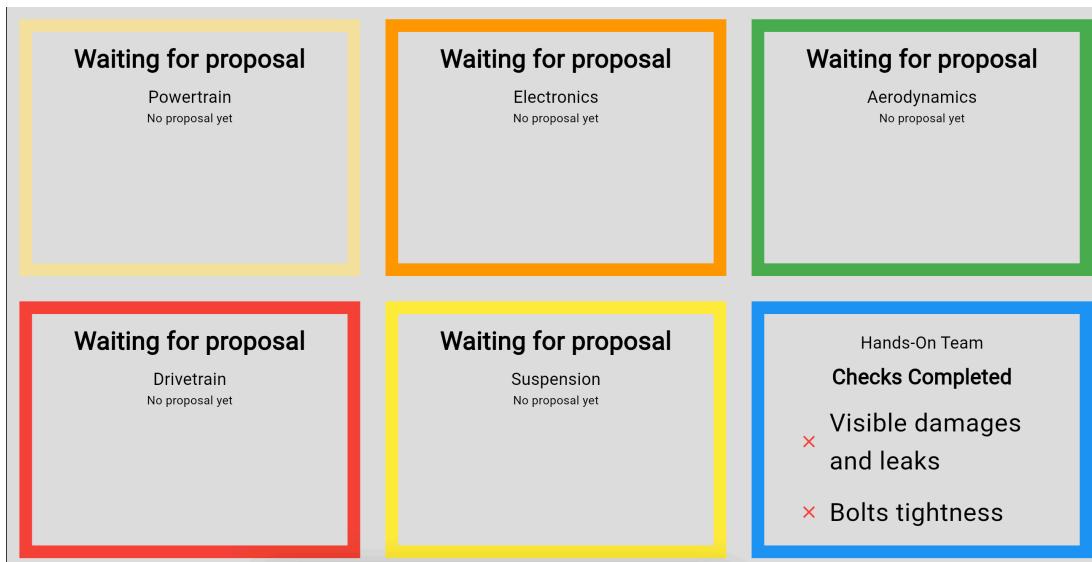
Chatting. User can send text messages, images and graphs.



Media



Chief Engineer Screens



Hands-On Team
Checks Completed

- Bolts tightness
- Fuel level
- Brake pad condition
- Visible damages and leaks
- Chain tension and lubrication
- Data recovery
- Tire pressure

NEW

APPROVE
REJECT

Suspension
Change Proposal

Rebound +1 clicks(180°)

Description
Description
part name
5 clicks(180°) → 6 clicks(180°)

Reason
Reason

Engineer Screen

CURRENT PROPOSAL

Select Part:	Front Suspension Rebound (clicks(180°)) <input type="text" value="5"/> Compression (clicks(180°)) <input type="text" value="4"/> Sag (mm) <input type="text" value="40"/> Rear Suspension Compression(clicks) <input type="text" value="19"/> Sag(mm) <input type="text" value="35"/> Rebound(clicks) <input type="text" value="19"/>	Enter a valid value for the change Description _____ Description _____ Reason _____ Reason _____
--------------	--	--

Change value from to clicks(180°)

DISCARD SAVE

Hands-On Engineer Screens

