

MACHINE LEARNING SIMULATIONS
/ Wind Tunnel Test /

START SIMULATION

Build Cash
Estimated Time: 231 sec

FORMULA INFINITY

ESPORTS PEDAGOGICS ENGINEERING

▶ Start ◀



FORMULA INFINITY



WHAT?

A simulator for vehicle
building / racing

A computer game

WE'RE BUILDING A GAME / SIMULATOR

The base idea for this project is to build a computer game where you get to construct your own vehicle, race, compete and complete challenges.

The feeling of the game is more towards the realistic than the imaginative. The player will get a feeling of working with something based on actual modern vehicle construction, including game systems revolving around sustainability, sensor technology, autonomous driving, etc.

Important to note is that there is an educational aspect to the project, but the game itself is not purely an educational game. Even though we all love Backpacker, this needs to be more game than textbook. The game aims to be creative, playful, fun and easy to get started with, but there is an aspiration for it to raise interest and awareness around engineering.

In parallel with this, other interests want to use this game / engine . More on that later.

COOPERATION



Universities



The Vehicle
Industry



The Game
Industry



COOPERATING PARTIES

The project involves three main cooperating parties:

- The game industry
- Universities
- The vehicle industry

These parties have different interests in the project. Together we will pool our resources and seek additional funding to be able to create value for each other through knowledge and mutual / applied funding.

UNIVERSITIES

GOALS

- A platform for learning
- Learn through play
- Do something real

CONTRIBUTION

- Scientific expertise
- Pedagogical expertise



Linnéuniversitetet



UNIVERSITIES

Currently, 12 swedish universities are involved in a mutual program for Formula Infinity.

Swedish universities are leading cutting edge research and education within many aspects of vehicle engineering and physics. They will contribute with their scientific and pedagogical expertise.

Pedagogical institutions are available for UX design work for the product. Universities have two main interests in the project:

Foster interest in the modern vehicle industry and engineering education.

The automobile industry as well as academies have a hard time attracting all the new competency that the industry needs. The industry has developed very quickly in modern time, and wants to showcase all the interesting new challenges that come with electrification, sustainability, autonomous driving, etc.

Acquire a complementary tool for engineering education.

Today, games such as Automation are used within education.



VEHICLE INDUSTRY

Left picture - Workshop 2.0 with Formula Infinity involving the vehicle industry. On screen Mattias Bergman (CEO Bil Sweden), Martin Andersson (BUM, Future Mobility, AFRY) and Ola Benderius (Docent, Chalmers University of Technology).



GOALS

- Meet the new generation
- Represent the modern industry
- Educate



VEHICLE INDUSTRY

The vehicle industry will contribute with cutting edge knowledge for modern vehicle construction and simulation, as well as a part of the funding for the project.

We have resonated well with the industry and have had discussions with all the major companies with representation in Sweden.

The vehicle industry has a few different types of interest in the project:

- Recruiting for the future
- Representing the modern vehicle industry to change outdated preconceptions
- Marketing (in game visibility)

ADDITIONAL INTERESTED





OTHERS THAT ARE INTERESTED

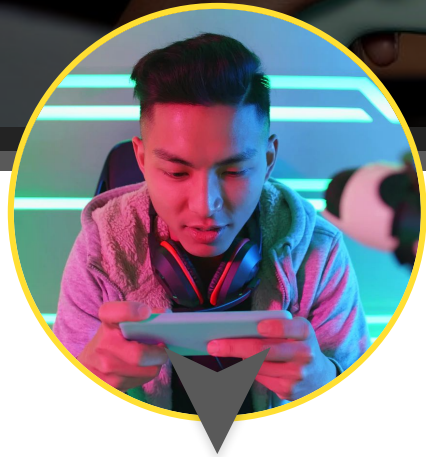
To organize such a project, a binding project leading layer is important. We have had great discussions with both RISE and the Future Mobility department at AFRY, and both parties are very interested to use their expertise to form the project synchronizing binding layer.

We also have a strong interest from Swedsoft, the swedish umbrella organization for software development, to house administration, funding applications, etc.

All these organisations have established direct connections for state funding through Vinnova and ministries of education as well as trade and industry.

We have also formed connections to several companies specialized in simulation and education as well as open source development, such as Simumatik. These companies serve as a source of experienced developers within cutting edge simulation.

TARGET AUDIENCE



Age groups 10-17
With additional
focus on girls



PC (Steam) / Console



Western Europe / USA

TARGET AUDIENCE

The game caters to children and teenagers 10-17, aiming to raise interest in engineering and problem solving. The game has a fulfilling pedagogical progression for deeper interaction, which provides long playability value. The idea of Formula Infinity is a game you will be engaged in for years, learning and exploring.

The additional depth will attract older players that can cooperate with younger players as well as act as role models and goals of aspiration. We see this as a selling point as younger players have something to strive for.

We are also keen on broadening the interest for the modern vehicle industry to young girls. The environmental aspect, among others, is a big point of interest for the young female generation.

Being a module based game, universities and companies are interested in building their own more in-depth modules for learning.

We see the primary platforms being PC, with distribution through Steam for a big main stream reach, as well as game consoles, to reach a broad audience in this age group.

It would be interesting to talk about a VR implementation as well.

Region-wise the game mainly targets the West; Europe and North America. This way we also connect to companies budgets for these countries.

THE GAME

- AAA
- A sandbox creative game
- Module based building
- Cooperative
 - Build separate parts of the vehicle
 - Get help by other players
 - Pair with a driver



- Challenges / Esports
 - Regular racing
 - Race on the moon / underwater
 - Complete challenges
 - Automated Driving
 - Environmental
- Moddable
 - Create your own modules
 - Other vehicles
 - Create challenges
 - Create maps



THE GAME

The idea for the game is a module-based building experience. You can interact with the car as a whole, such as choose an engine. You can then double click the engine to interact with the engine itself on a deeper level. You might then be able to go deeper on a specific engine component, etc.

This lets you interact with the game on your expertise level, and you enlist other players to help you fine tune parts and construction or build a vehicle as a team from the start.

Finally, you can drive or pair up with a driver to race, enlist in tournaments or complete challenges. You can also let your autonomous driving system drive for you.

An important aspect of the game is the engineering challenge. You'll start the game with simple challenges where you need to tweak or tune something to make your vehicle handle a task. From there it'll progress, up to a point where you might have races where all competitors get to tune one thing wrong in a competitors vehicle and see who can do most damage.

The aesthetic aspect is also important, and any big competition should also evaluate the look and style of the vehicle.

Finally, a module and challenge based game makes a great community moddable base. As with many modern game titles, we aspire for this to have a big modding community and a life of it's own.

This also ties into cooperation with schools and vehicle industry. Academies, big vehicle companies and real racing teams can host their own competitions.

MODERN VEHICLES



- The old
 - Gasoline and oil
 - Exhaust
- The new
 - Environmentally friendly
 - Electrified
 - Autonomous driving
 - The smart city

MODERN VEHICLES

The vehicle industry has changed drastically over the last decade and is still changing in a rapid pace. The stereotypical idea of gasoline engines, exhausts and greasy mechanics is a thing of the past, and it is important that we showcase this in Formula Infinity. The problem solving within the modern industry has a lot of very interesting depth that should be explored within the game.

We see environmental aspects as a big part of the game; electrification, efficient energy usage, material choices, production costs, etc, make great topics for game mechanics and ingame challenges.

Autonomous driving and sensors do a lot of work in modern vehicles, from efficient brakes all the way to self-driving cars. We see this as an additional important level to the game. Tune your vehicle from your data via the vehicle computer and create algorithms for improved or autonomous performance.

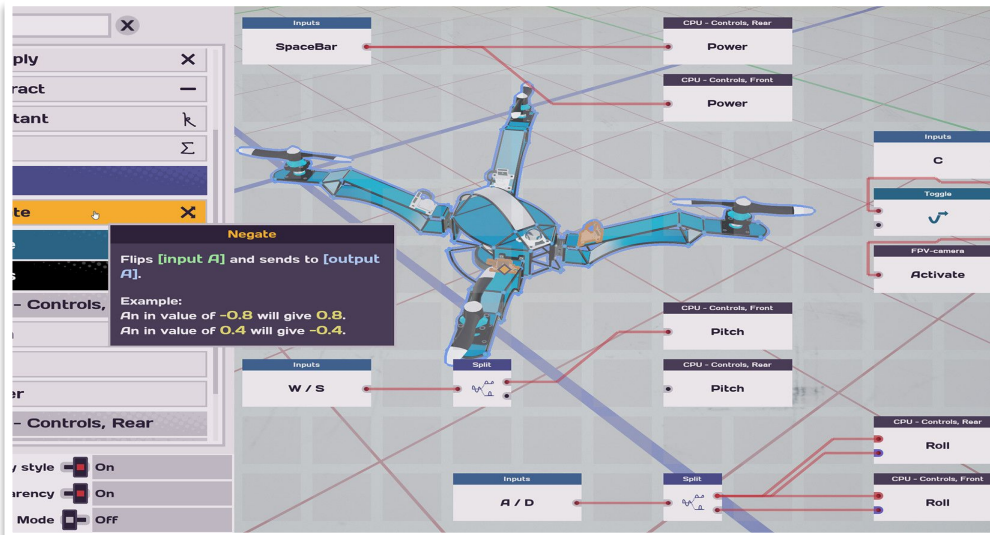
We are also looking into how to incorporate the smart city and smart traffic into the game concept.



Creative like Main Assembly



Cool and colorful like Satisfactory



THE FEEL

The game should have a younger feel without being childish. It is important that the players feel that what they are building is based on real engineering and science. With that in mind, we want to put this in an inspiring and creative context.

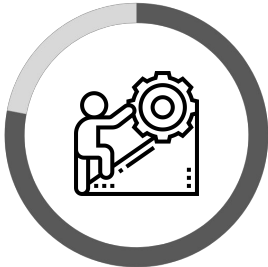
A great example for a playful, clean interface is Main Assembly, from the swedish company Bad Volk. The game is slightly too playful for us, but the simplicity and usefulness of the UI is a great example for the direction we want to go in. Bad Volk are friends of the project, and have offered to provide game developers with knowledge and expertise for the genre.

We are also going for a very clean interface, showing only the functionality that's relevant. You can easily switch tasks by clicking on another part of your vehicle or other smart shortcuts. The interface then switches to handle that task, keeping the full picture in frame.

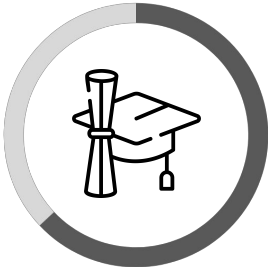
The game graphics style should probably be more in the line of something like Satisfactory, without being as industrial. Satisfactory has a more realistic and mature tone, but still a very bloomy and youthfully bulky art style. It also needs a more varied color palette, rather than the industrial style of that game.



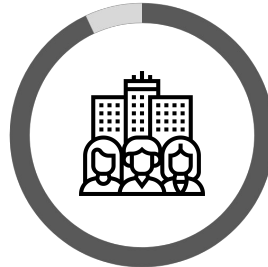
Community building
game



Regular
challenges and
competitions



University
challenges



Company
sponsored
teams and
challenges

ESPORTS

ESPORTS

We see this game as interactive and community-building. We think that an important factor in the games success is to post regular challenges and competitions between players of different levels.

These challenges can range from one player challenges to complete certain tasks with a vehicle, to teams building vehicles for traditional racing.

Using our connections within the educational institutions, we aim to set up student racing competitions (like the Formula Student university initiative, where teams of students build real vehicles and race against each other).

We also see the possibility for broadcasted coverage, where the players behind the different team roles get to describe their design and building process. The vehicle industry is interested in having their own sponsored teams represented in these types of broadcasts, or specific sponsored competitions revolving around themed challenges.



THE PLAYERS

Different types of players

Builders

- Vehicle construction
- Solve engineering problems
- Optimize

Designers

- Design and shape of the vehicle
- Paint job / visual style
- Interior design

Coders

- Sensor based driving help
- Autonomous driving

Drivers

- Vehicle testing
- Competition



THE PLAYERS

The game idea has the possibility to connect players with different interests. Just like a regular game might connect a Tank with a Healer and a DPS, we will connect vehicle builders with visual designers, vehicle behavioural programmers and race drivers.

As a challenge is posted, you can search for a team to join to help create the best vehicle you can within the time frame. Pair up with a driver to receive testing data and practice together.

REVENUE MODEL

FREE TO PLAY

PLAY TO UNLOCK /
PAY TO UNLOCK

LONG TERM:
PLAYER GENERATED
ASSETS



REVENUE MODEL

We see the main model as Free to Play. You then gain in-game currency as you complete challenges and races. This currency can be used to buy new vehicle parts, materials or bundles (similarly to purchasing new champions in League of Legends).

Additionally, we can add skins and other vanity (hood ornaments, etc) items into the model. Special edition cars and parts can be purchasable for collecting players.

In the long run, player-made parts and bundles can be added to the ingame store. Players can add their own vehicle body models or tune or create specific vehicle parts through future game modules.

ADDITIONAL BUSINESS

Licenses for education /
businesses

The project partners should
have agreed upon access.



ADDITIONAL BUSINESS

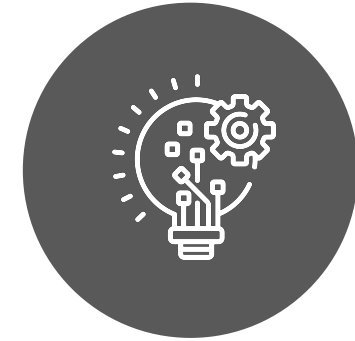
In the future, the participating partners aim to be able to use this as an educational platform in engineering education at university level. Making the game module based will provide the opportunity to build additional scientific and technological depth over time, achieving this goal in the long term.

The licensing and use of this platform should be available to all project members (within agreed upon boundaries).

There is then the opportunity for the game company or distributor to own the rights for additional licensing and use of this platform (whether it is a separate product or not) by other companies, educators or users.

BUDGET & EXCHANGE

BUDGET AIM: 100 million SEK (~9.7 million EURO)



- **We** will be pushing for funding
 - Innovation funding agencies
 - Ministries
 - Companies
- **We** bring cutting edge competency in vehicle technology, vehicle production and pedagogics via universities and the vehicle industry
- **We** coordinate the cooperation

- **You** contribute resources to an equal value of our granted funding
- **You** own the actual product
- **You** do game development
- **You** help us make this a usable platform for all parties



BUDGET & EXCHANGE

We would see an even split in funding and resources for the project.

We are aiming to apply for funding from research and development institutions as well as ministries of education and industry. These types of applications can grant you half of the project budget on the terms that you provide funding or project resources (personnel, equipment, etc) equal to the other half. We would see that you would commit to providing that half, and we will apply for the grant together. We have established ties to these institutions as well as seasoned experts for creating applications. If sufficient funding would not be granted, you would of course not have any obligations to engage with any funding or resources.

We have set the bar for the project budget at 100 million swedish kronor (SEK), as that is a ballpark figure for the larger research grants, as well as a reasonable budget for a AAA game development project.

You, as the commercial interest, **will then be granted ownership for the game and its revenue**. The educational institutions only have an interest in using the final product, and we will outline and legally document what that would mean.

The grants will be used to cover our participation. We will provide expert resources for models and algorithms for the vehicle physics engine and pedagogical teams to outline player interaction with the different modules, in cooperation with your game designers and programmers. We will provide the project organization through RISE, an organization well versed in leading large cooperative technical and scientific projects.

Thank You!

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