



SPONSORING BOOKLET

“NATURE’S EYE IN THE SKY - FOR A FUTURE
WHERE WILDLIFE CAN THRIVE”

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OUR MISSION

According to the **Save the Rhino Foundation**, rhino **poaching** in South Africa alone **rose by 9,000 percent** in the last 15 years. The **biggest challenge** faced by wildlife reserves is the ability to **monitor the whole park**. For example, even with more than 400 rangers on patrol in the southern part in *Kruger National Park*, only a fraction is covered.

One big reason for this struggle is the **lack of sufficient surveillance solutions**. **Commercial multi-rotor drones** are severely limited by the **short flight** time of about 15 to 55 minutes, as well as **noise pollution**.

Our project plans to tackle this problem by providing the rangers with **groundbreaking situational awareness**.



OUR VISION

Our vision is clear: providing a **silent eye in the sky** to strive for a future where **wildlife can thrive**. We value your **potential sponsorship** as a **critical contribution** to this vision.

On average, poachers kill **96 African elephants** and **two rhinos every day**. Our project plans to tackle this problem by developing a **silent long-endurance drone** that can **autonomously and unobtrusively monitor large areas**, supporting rangers in preserving wildlife.

We are an ETH Zürich Focus-Project, pushing the boundaries of technology, composed of **10 highly motivated students** who want to use the theory learnt in the first two years of their studies to have a **positive impact**.

Together, we personify **craftsmanship, creativity and curiosity**. Moreover, we are driven by **perseverance, precision and respect** - words that every ETH engineer lives by.

What deeply connects our whole team is our **care for wildlife** and **incentive to act!**

NATURE'S SILENT EYE IN THE SKY

We intend to offer a **comprehensive solution** by engineering a **drone equipped** with a multitude of **advanced sensors and cameras**, with the ability to **fly for an entire night**. To achieve this, we will **maximise energy efficiency** by optimising the powertrain and aerodynamics of the aircraft, and notably, the drone's power will be supplied by an **environmentally friendly hydrogen fuel cell**, which has a very **high energy density**.

We aspire to equip conservationists with an **Eye in the Sky, silent and unnoticed** by animals and poachers alike. **NOCTUA's drone** would combine **autonomous navigation** with **short take-off and landing**, to cover large pieces of land during **day and night**. By combining **visual and thermal cameras**, we want to be able to **detect poachers** even in **low visibility situations**, when they are most likely to strike.

While we remain **open to various use cases** and implementations for our drone, we **firmly and unequivocally distance ourselves from any military applications or intentions**.



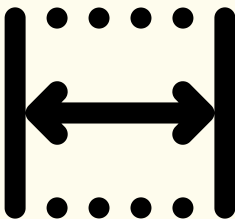
NOCTUA IN NUMBERS



12h flight time



4 kg payload



20 km transmission range



Sensors

Visual Camera, Thermal Camera,
GPS, IMU



<35 dB of noise

THE TEAM



Alfonso Maculan
Project Lead &
Controller Design



Diego Malsiner
Systems Engineer
Structures



Felix Muller
Software Architecture



Simone Morandi
Structures



Yegor Gorodzha
Electrical Systems



Mark Benazet
Controller Design &
Software Architecture



Nick Truttmann
Simulation



Jakob Marten
Structures



Raffael Meier
Aerodynamics



Nicola Fiore
Aerodynamics

FOCUS PROJECT NOCTUA

To **accomplish these goals**, we have help from some of the **best scientists and engineers** in the world. We are under the supervision of the **Soft Robotics Lab**, the **Institute for Dynamic Systems and Control**, the **Laboratory of Composite Materials and Adaptive Structures** and the **Product Development Group Zurich** of the mechanical engineering department D-MAVT.

At **ETH Zürich**, **Focus Projects** are revered as **prestigious and highly sought-after** initiatives for **third year Bachelor engineering Students**. They also serve as a **magnet for potential students**. Our projects garner **intense curiosity** from students, researchers and companies alike, with the **end-of-May rollout** being a **highlight on the ETH calendar**.



UN SUSTAINABLE DEVELOPEMENT GOALS



Accomplishing some of the United Nations' Sustainable Development Goals was our very motivation for this project.

Life on Land:

Our drone will help rangers to protect wildlife and the rural ecosystem in general. In addition, we will be able to track animals for reasearch purposes with the help of built in SIGFOX technology.

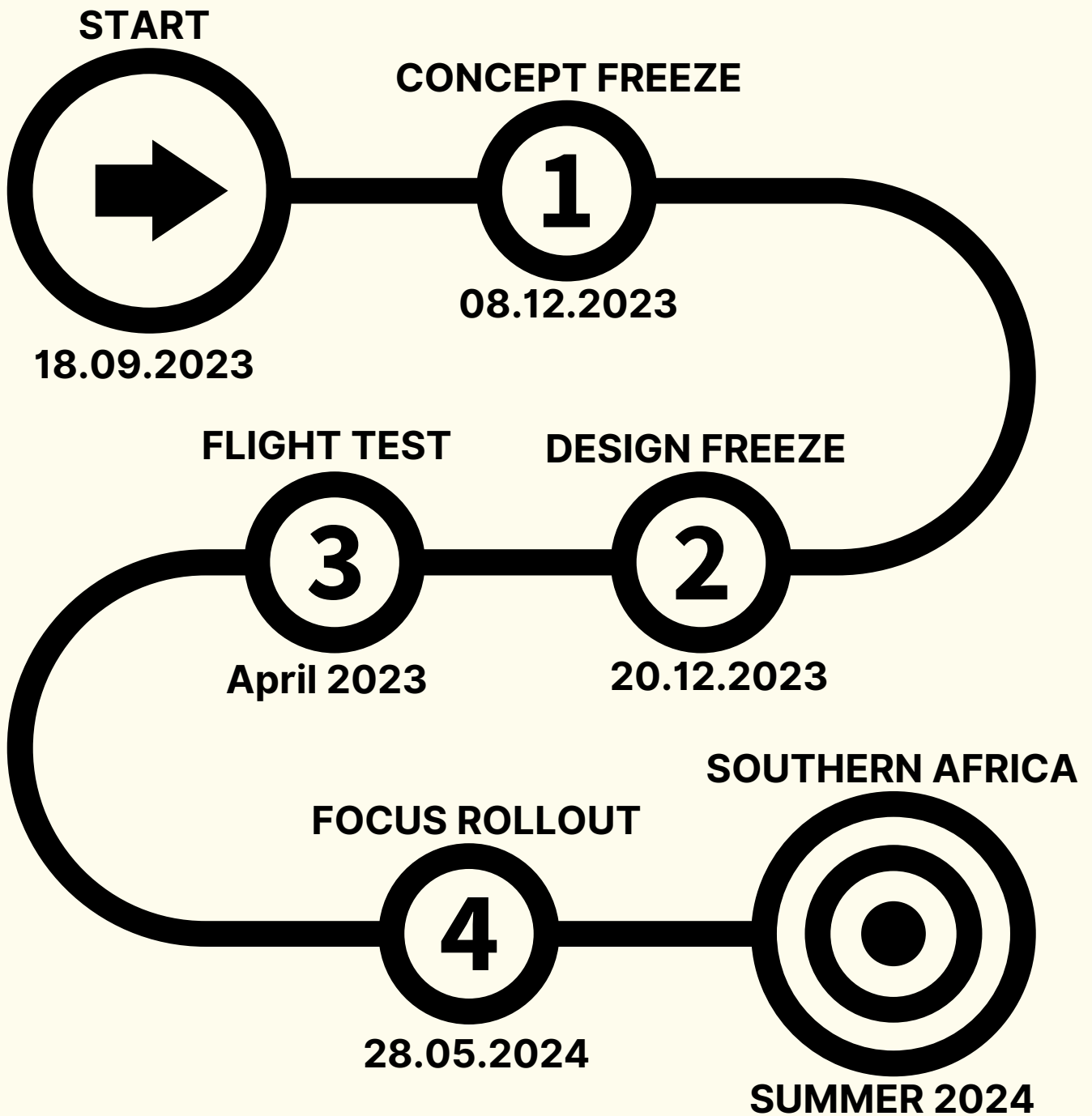
Peace, Justice and Strong Institutions:

Our drone enables rangers to silently detect poachers without alerting them, potentially avoiding violent encounters. Likewise, the poachers can be held accountable for their crimes and other illegal activities such as illegal deforestation can be tracked.

Partnerships for the Goals:

We are in close collaboration with the *Max Planck Institute of Animal Behavior* and the *Kruger National Park*. These organizations give us valuable input about the use-cases of the drone so that we can engineer the solution that best fits their needs. We will also have the opportunity to field-test the drone.

ROADMAP NOCTUA



EXPERTS



Prof. Dr. R. Katzschmann



Prof. Dr. P. Ermanni



Prof. Dr. M. Zeilinger



Prof. Dr. M. Meboldt



Dr. A. Carron

COACHES



Benedek Forrai

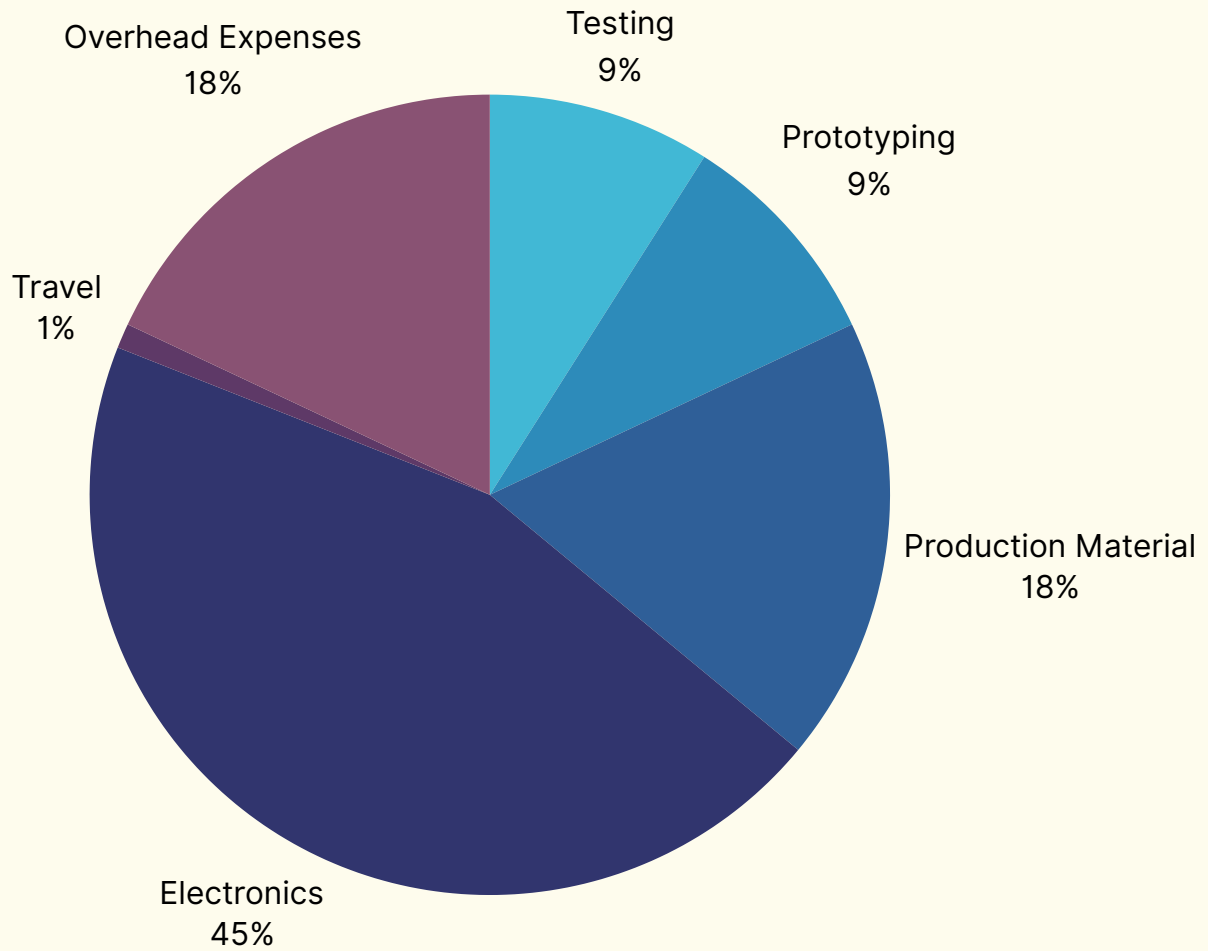


Pascal Strauch



Marc Blöchlinger

BUDGET



SPONSORING

Sponsoring NOCTUA brings with it **numerous benefits** for you and your company. Depending on the **sponsoring tier** you choose, you will be **visible on our website, social media, events** and more, all in a highly innovative and creative environment. **Your logo** could even end up **on our drone!**

Focus Projects boldly push the **boundaries of technology** and embrace **innovation**. This makes them the ideal platform for companies seeking **collaboration with members of ETH Zürich**. You will gain access to the **amazing talents** that ETH Zürich produces. It is an opportunity to **position your company as an innovator** and **showcase groundbreaking products**.

We are open to **various forms of sponsorship, not limited to financial support**. Your contributions of **technical components or services**, crucial for the development of this drone, are **highly appreciated**.

If you or your company is interested in a **customised solution** or have any questions, **contact us**. We are **flexible** and **look forward to working together!**



SPONSORING BENEFITS

	Diamond from 10'000CHF	Gold from 5'000CHF	Silver from 2'500CHF	Bronze from 1'000CHF	*
Webpage Logo	XL	L	M	S	
Rollout Invitation	✓	✓	✓	✓	
Social Media	POST++	POST+	POST	STORY	
Merch Logo	L	M	S		
Custom Solution	✓	✓			
Event**	✓				
Logo on Drone	✓				

POST+ : Post every three months

POST++ : Post every month

*: Donations lower than CHF 1'000 will appear on our webpage as donors.

**Event: Sponsors will be invited to future events of the Project

WE AWAIT YOU

NOCTUA extends its deepest gratitude to all our partners, sponsors, and collaborators who **share our vision** of creating a **future where wildlife thrives**. Together, we can push the boundaries of technology, **protect** our planet, and make a **lasting impact**.

Your support and commitment propel us forward. As we continue our journey to provide Nature's Eye in the Sky, **we invite you to be a part of our mission**.

Contact us today to explore how you can **contribute** to a brighter and more **sustainable future**. Together, let us soar to new heights.

With heartfelt gratitude,

Your **NOCTUA Team**

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