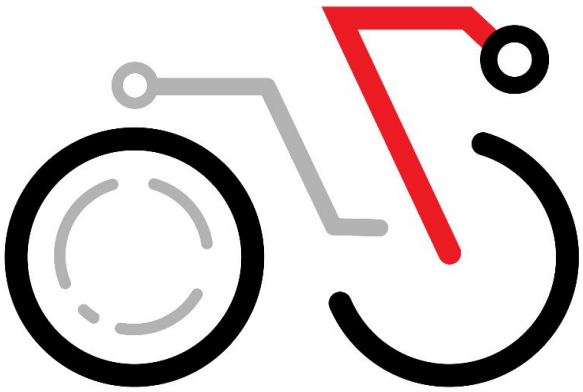


AUTOBIKE

2022-2023

SPONSORSHIP INFORMATION

CORNELL UNIVERSITY
AUTONOMOUS BICYCLE PROJECT TEAM

TABLE OF CONTENTS

Thank you for your support in AutoBike!

AUTO BIKE

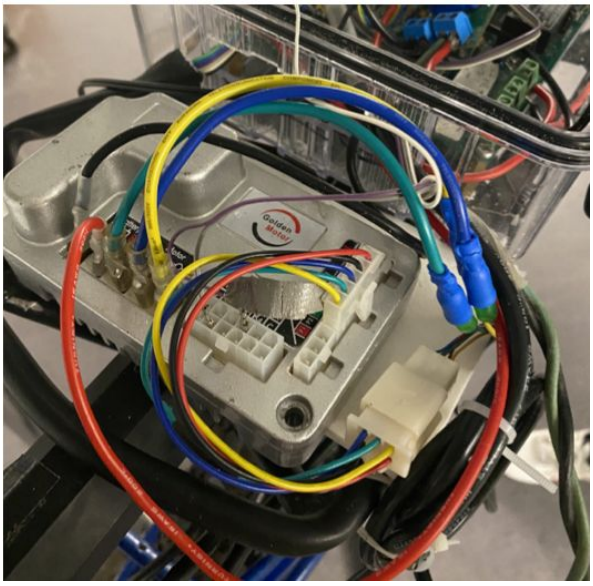
ABOUT THE TEAM

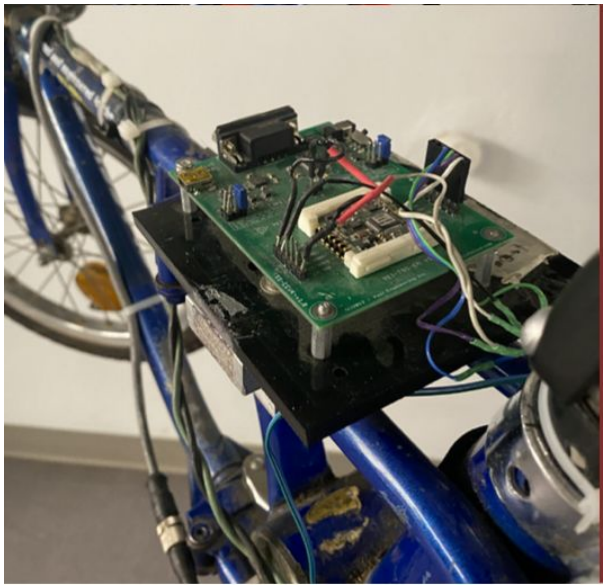
Intro

We are Cornell AutoBike, a student project team dedicated to solving novel problems in autonomous technology, Founded in 2018, we aim to engineer the next advancement in autonomous tech: a self-navigating, self-balancing bike. With a team of 30 engineers, physicists, and mathematicians, we're currently on track to create a fully functioning prototype by the end of 2023.

Our Mission: To advance autonomous technology through a self-balancing, self-navigating bike

THE BIKE





So far, our team has been able to develop an autonomous bicycle that is capable of navigating and balancing itself. While others have developed autonomous bicycles using gyroscopes or reaction wheels, our mission is to reduce weight and manufacturing costs by balancing our bike only through the steering control of the front wheel.

Our current bicycle comes equipped with built in vision components that can detect, classify, and avoid dynamic objects in its surrounding environment. The bike also holds a GPS and IMU unit along with path tracking and robot localization algorithms to orient and steer the bike in any direction.

OUR SUBTEAMS

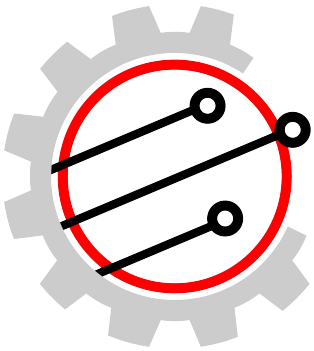
Controls

The controls subteam is in charge of making a controller to keep the bike balanced. This team combines a wide array of engineering concentrations to ensure maximum “control” of the bike.

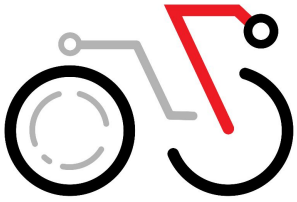
Navigation

The navigations subteam works on developing algorithms focusing on obstacle-avoidance, path-planning and other intelligent navigation algorithms. We employ algorithms such as reinforcement learning, VFH*, SLAM, etc. to achieve these goals and enable the bike to self-navigate in the real world.

Mechanical



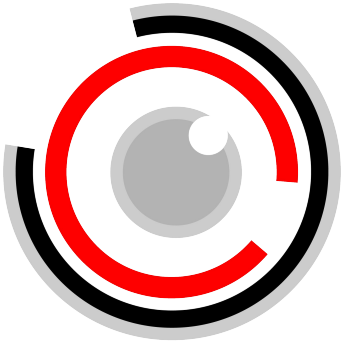
The mechanical subteam designs, develops, and maintains mechanical hardware necessary for the bike to work. An important part of their work is making bike components on CAD and machining.

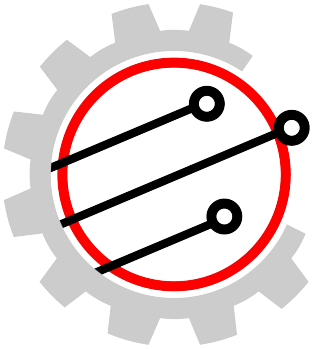


OUR SUBTEAMS

Vision

The vision subteam focuses on allowing the bike to see the environment surrounding it, working on real time object detection using YOLO and image mapping in ROS. This information is essential for the bike's navigation.





Electrical

The electrical subteam works on designing and developing mechanical and electrical hardware needed for the bike to operate. A key responsibility includes optimizing embedded systems and printed circuit boards.

Business

The business subteam is responsible for managing the team's budget and ensuring we have the funding and tools necessary to reach our goals. They engage and support all other subteams and maintain the day-to-day operations of the entire team.

WHY CONTRIBUTE?

Your donation will allow us to

- **Push the boundaries** of autonomous technology as we learn, build, and improve on the bike
- **Gain more tactical experience** in engineering, physics, and design
- **Purchase new equipment** to better the bikes balancing and object detection systems
- **Bring students together** across Cornell's diverse campus to achieve a common goal

SPONSORSHIP TIERS

AutoBiker **$5,000+**	Resume Book Priority Meeting with Any Project Team Leads Placement of Company Link and Logo on Team Website Custom Placement of Corporate Logo on Team Merchandise Custom Placement of Corporate Logo on the Bike Custom AutoBiker Thank You Package from AutoBike
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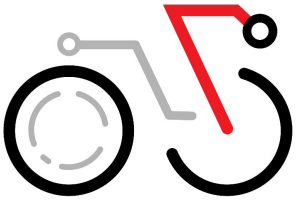

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