

# Tanmay Chhatbar

## Aspiring Automotive Engineer

As a dedicated automotive engineering student with a passion for innovation, I'm driven by curiosity and competitive spirit. I understand the value of fluency in technology, and enjoy working in all related avenues.

### EDUCATION

#### Master's in Science, Automotive Engineering (ongoing)

Clemson University (CU-ICAR)

2021-2023, Greenville, SC

#### Bachelor of Technology, Mechanical Engineering

Mukesh Patel School of Technology Mgmt. and Engg.

2016 - 2020, Mumbai

### WORK EXPERIENCE

#### Deep Orange 14 internship

Team member for *Vehicle Dynamics* and *Controls* teams

2021 - 2023

- Developed models to *simulate vertical dynamics* of multi-wheeled vehicles
- Collaborated in developing, testing and *improving control strategies* for a 3-ton tracked, skid-steered, autonomy-capable prototype vehicle
- Instrumented vehicle with *sensors for data collection* and state estimation
- Developed MATLAB scripts for data analysis
- *Tools skills* including MIG welding, forklift operation, etc.

#### Hourly research assistant

VIPR-GS at Clemson University

2022-

- Developing *scalable VD models* for skid-steered, tracked vehicles
- Researching GPS systems utility for autonomous vehicles

#### Automation controls designer

Starch Products (Family business)

2017 - 2021

Implemented multiple automation solutions to reduce dependency on labor

- Weigh-metric, volumetric *auto-fill systems*
- Variable valve control for fluid flow
- Pulse based rate counter to estimate flow speed, appx. total flow

### COMPETITION EXPERIENCE

#### SAE Aero Design East, 2019

7<sup>th</sup> Place in Mission Performance

Technical Head (2018 - 2019)

- Led the design of fuselage, landing gear and tail-section of aircraft
- Assisted in electronics testing, validation and selection

#### Boeing Aeromodelling, IIT Kharagpur, 2019

3<sup>rd</sup> place overall

Team Captain (2017 - 2019)

- Led the team in design and testing of aircraft
- Assisted in development planning and manufacturing

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### Skills

- Systems design
- Vehicle dynamics modeling
- Controls development

### Computer skills

- MATLAB/Simulink
- Simscape Multibody
- Programming in Python
- Siemens NX
- SOLIDWORKS
- Additive manufacturing
- MCU development

### Content creation

- blender (3D animation)
- kdenlive (video editing)
- GIMP (photo editing)

### Languages

English (professional)

Hindi (fluent)

Gujarati (native)

### Social accounts

linkedin/in/TanmayChhatbar

github/TanmayChhatbar

youtube/c/TanmayChhatbar

### Hobbies

Motorcycles

Motorsports

Badminton

Sim-racing

AutoX

Working on cars



# Projects by Tanmay Chhatbar

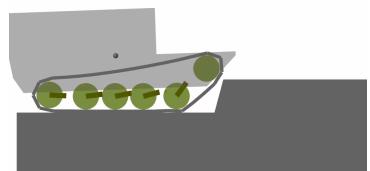
tanmaychhatbar@gmail.com

## Multi-wheeled vehicle modelling

Deep Orange 14

2021 - 2023

- Created various tools of varying complexity to better understand the dynamic limits of the vehicle we develop.

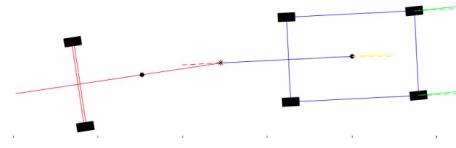


## Tractor-trailer modelling

Clemson University - ICAR

2021

- Developed a fully configurable simplified tractor-trailer model. For small angles of vehicle slip, this model should provide realistic results. The model featured a linear tyre model with no lateral load transfer or suspension.



## Vehicle datalogger

Data collection during AutoX events

2021 - 2022

- As a challenge, I engineered a datalogger for my car to collect inertial and GPS data while participating in AutoX events.



## Autonomous robot

Clemson University - ICAR

2022

- Using ROS and Python, we programmed a Turtlebot3 robot to take on wall following, obstacle avoidance, line following, stop-sign detection, and following an Apriltag.



## Small scale ADAS

Clemson University - ICAR

2021

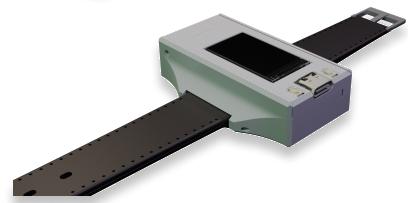
- An Arduino Uno board was used alongside ultrasonic sensors to implement Lane-Keep Assist and Adaptive Cruise control on a 1/8th RC car.



## DIY Smartwatch

Designed, manufactured and programmed by self

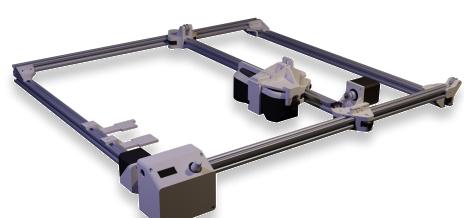
- Expenditure on education and improvement is okay, buying frivolous objects is not.I wanted a smartwatch.There's only one solution. [DIY](#)



## i1Pro 3 automated plotter

Designed, manufactured and programmed by self

- To automate the process of calibration of a spectrophotometer, an Arduino Nano board running fully custom-written path calculation software along with an intuitive UI was developed.



## Improvements in the factory

Stagnation isn't good for mind or business

- Designed and manufactured automation solutions and devices for streamlining workflow in processing of potato starch, and packaging of soaps and detergents. for industrial use. These include:
  - Automatic bottle fillers for packaging soaps and detergents
  - Sound-based acid flow-rate and quantity estimation for positive displacement pumps.
  - Packaging heatshrink auto-cutter.



More details on my projects