Hatchling Development Program

Founded Fall 2015

10th Year Anniversary – Fall 2025

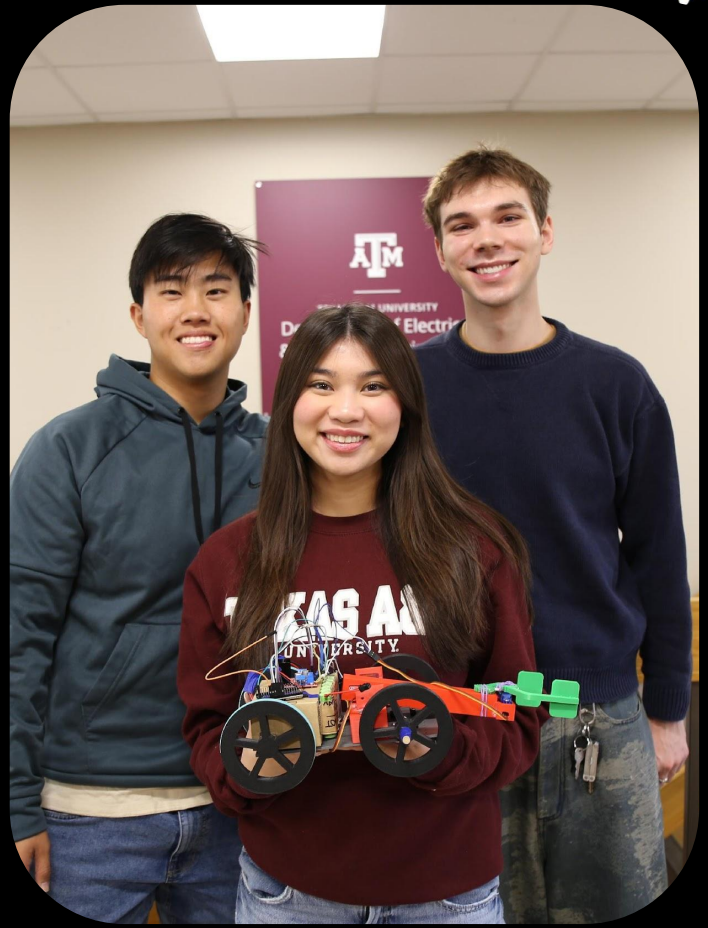
Content

Mission Statement

To provide the resources and environment that enables undergraduate engineers to grow outside the classroom through technical lectures and collaborative, hands-on semester projects

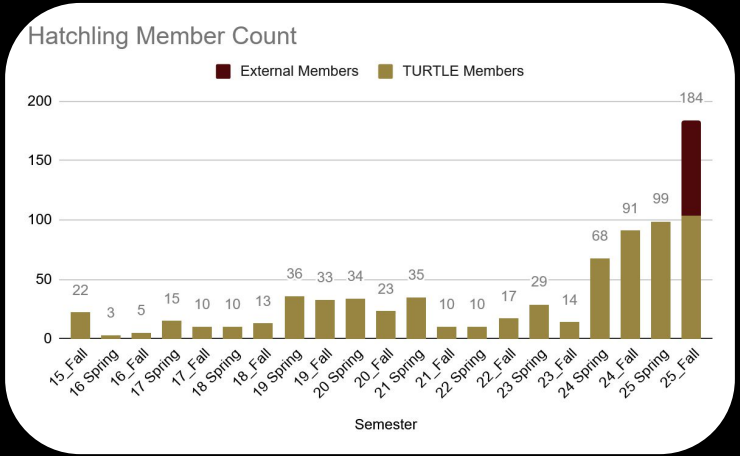
Testimonial

“Hatchling's environment is very warm and welcoming, perfect for anyone who is just starting out and doesn't know much yet. I loved being around people who were there to have fun and build robots together. More importantly, Hatchling gave me the chance to grow as an engineer in a field that usually demands prior skills, helping me take my first steps into robotics with great support.” - Spring 2025 Graduate



By the Numbers

- 761 all-time members – 184 Fall 2025 members
- 3 Student Organizations – 2 Universities
- 20 Consecutive Semesters under Student Leadership
- 70% of participants enter without robotics experience
- 95% Recommendation Rate by Participants
- Gender- and ethnically diverse team



Join us in breaking barriers, expanding access, and launching the next generation of engineers

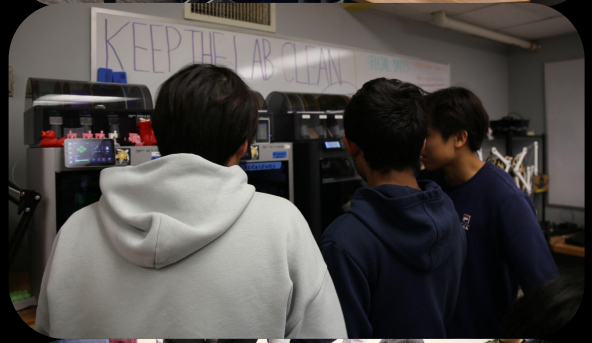
Expanding the Mission – Partner Organizations

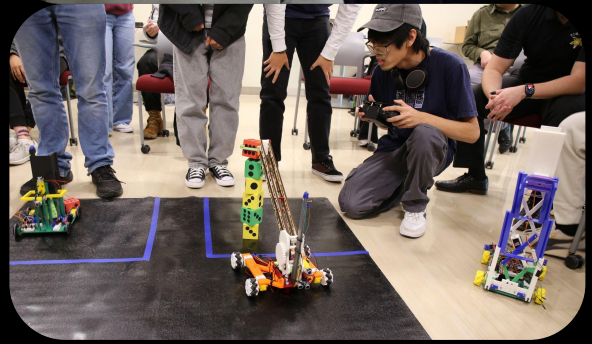
Texas A&M University

- Texas A&M University Robotics Team and Leadership Experience
- Society of Mechatronics Engineers

Texas A&M University at Galveston

- TAMUG Aquatics Robotics Team





Schedule

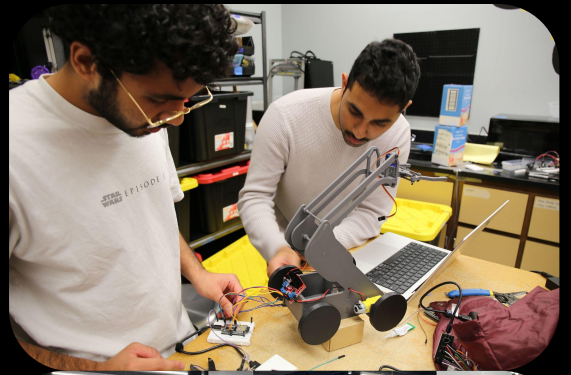
- Week 1: Introductions
- Week 2: SolidWorks (CAD) Foundation
- Week 3: SolidWorks 3D
- Week 4: Tools, Project, and Process
- Week 5: SolidWorks Assembly
- Week 6: Design Review and C++
- Week 7: Programming and Git/GitHub
- Week 8: Electronics and Soldering
- Week 9: Prototype Week
- Week 10: Build Week

Orange indicates a project milestone

**College Station has 3 Meetings a Week (Repeated Lecture Content)

Learning Objectives

- SolidWorks (CAD) Competency
  - Design custom parts and modify assemblies
  - Reading and designing around manufacturing constraints
- Electronics
  - Evaluating hardware specifications and datasheets
  - Circuit design and implementation
- Programming
  - Utilize Git/GitHub
  - Control hardware via a microcontroller
  - Python and C++
- Manufacturing
  - Soldering and crimping
  - Additive manufacturing
- Problem Solving and Critical Thinking
  - Teams go through the design process from concept creation to testing

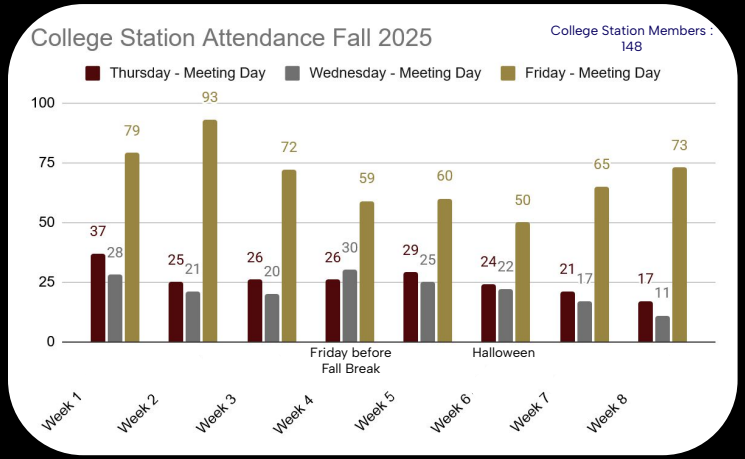


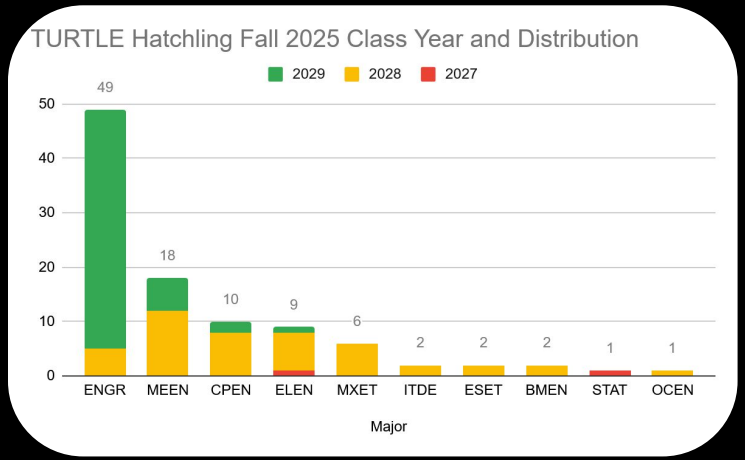
Impact in TURTLE

- Hatchling alumni go on to leadership positions:
  - 90% of all-time Hatchling leaders
  - 100% of Treasurers since 2016
  - 50% of all-time senior leadership, project leads, and officers

- Internship and Research Positions (Summer 2025)
  - Texas A&M Engineering Experiment Station
  - The Boring Company
  - Selector AI
  - TEKsystems (Full-Time)
  - City of Victoria, Texas
  - DEVCOM Army Research Laboratory
  - REUs and TAMU Research Labs
  - And more

- SolidWorks Certifications (CSWA and CSWP)





College Station Fall 2025 Stats

- Average lecture attendance of 116 members (78% of Hatchlings)
  - 88% of TURTLE accepted members who attended a meeting joined TURTLE and participated in a club social
  - Members represent 11 different majors
- 17 teams completed their project (53%)
- 90% gave a 8/10 or higher experience rating
- Net-positive program budget of $3600
  - 50 / 50 split for supplies / shirts
  - ~$700 in long-term program investments

Additional

- Demonstrated success of internal structure & documentation for long term (10+ years) sustainability with TART/SOMTECH expansion
- Introduced gen two in-house dev board based Hatchling robot controller
  - Provides greater project freedom when incentivizing software solutions

Fall 2025 – Spring 2026 Goals

- Inaugural Professional Development Workshop Series semester (Hatchling supplemental)
- Introduce V2 of Hatchling ESP32-based Controller with PCB / dev board variants
  - Estimated controller production cost – $254.92 / $196.85 per 10 units
- Extend team skills in software and embedded systems, with emphasis on
  - Git/GitHub , C++ , Linux, and Hardware Integration
- Expansion to external student organizations and public
  - Inaugural College Station Interorganizational Cup
  - Hatchling materials posted on TURTLE website
  - Lectures recorded and posted on YouTube
- Develop Incubator Development Program Curriculum (Discipline specialized Hatchling sequel)
  - Mechanical – S26 Slides with F26 Release
  - Software – S26 Slides with F26 Release

Long-term Investment Goals

- Electrical Incubator – TBR Slides and TBD Release
- Lab equipment
  - Robotic arms as an experimental testbed for skill development (Software Incubator Foundation)
  - Additional 3D-Printers (Expand rapid prototyping capacity)
    - Existing 4 printers runs full-time during project phases
  - Additional soldering stations / workstations / lab space (Current TURTLE Capacity Limitation)

Our Sponsors

Platinum

- J. Mike Walker '66 Department of Mechanical Engineering

Gold

- TAMU College of Engineering
- TAMU Student Engineers' Council

Silver

- TC Energy

Bronze

- Polymaker
- Williams
- Phillips 66
- L3Harris

TURTLE Development, A Decade of Advancing Undergraduate Engineering Standards