

Engaging Members with Projects

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What engages members???

- ▶ In the “Old” days (before internet),
people came to the IEEE for information.
- ▶ Today, that information is all available online...
 - So what is it that engages IEEE members???
 - * Ability to network and meet new people
 - * Ways to discover what is happening in their community that is not online
 - * Ability to use, learn, apply skills that they do not use in the regular day job
 - * Working on projects that have social meaning and technical challenges

Projects

What can we do?

- ▶ High School / College project teams
 - FIRST Robotics
 - Future City
 - Local science events (i.e. Atlanta Science Festival)

- ▶ Professional Competitions
 - DARPA has launched a number of *prize challenges* in recent years: DARPA Grand Challenges (2004 and 2005) DARPA *Urban Challenge* (2007) DARPA Network Challenge (2009) DARPA Chikungunya Challenge (2014-2015) *DARPA Robotics Challenge* Trials (2013) *DARPA Robotics Challenge Finals* (2015) *Cyber Grand Challenge* (2016)
 - XPRIZE

- ▶ Projects that support “Advancing Technology for Humanity”

FIRST

- ▶ 2001 – 2004 - Mentored students at magnet high school
 - - The program had a 98% success rate for students moving on to college.
 - - Won national title in year 4 of the program
 - - IEEE sponsored the team



- ▶ Take away: - **FIRST and other STEM programs are a great way to encourage students to learn about engineering fields**
 - - These programs always need mentors and sponsors.
 - - Our largest chapter meeting was on FIRST. We had 130 people attend a chapter meeting to see the student teams present their robots and programs. This included a family of 3 generations.
 - - Family events have been very popular
 - - Most engineers enjoy working with the students



DARPA Grand Challenge

- 130 miles through the desert with no driver and no remote control
- Autonomous driving means all decisions made without human intervention
- Team started with section sending me to kick-off meeting
- Core team was previous FIRST students that were at NC State University
- Placed in Finals (11 of 189 teams)

Take Away:

- **College students love an opportunity to be involved**
- **Generated interest from multiple universities, IEEE, Industry, and the public**



DARPA Urban Challenge

- ▶ Autonomous operations in urban environment
- ▶ route planning, traffic circles, 4 way stop intersections, other traffic
- ▶ Engaged 65 people in the project including Lotus USA
- ▶ Cover of machine design magazine, front page multiple newspapers, Discovery Channel, BBC, Live TV demo
- ▶ Placed in semi-finals



Take Away:

- We engaged members, universities, industry, and the public
- Team was recognized at international level
- As Computer Society Distinguished speaker, did 21 talks representing IEEE
- Program brought significant interest from the public to IEEE





Triangle Amateur Robotics

- TAR started in 1975, oldest robotics club in USA
- Club organization was informal
- When club lost it's meeting location in 2013, I invited the organization of about 50 people to merge with IEEE ENCS R&A
- We gained about half of the club members in the merger.

► Take Away:

- - Look for other organizations in your area that do similar things
- - IEEE organizational structure is far superior to many local organizations
- - Get involved with outside organizations to spread the word. Joint meetings with non-IEEE organizations is a great way to meet potential new members.



RoboResearch Seminar

- ▶ Our chapter establish a one day robotics seminar to encourage robotics research and development in the state of North Carolina.
- ▶ Invited state government, university, and industry speakers as well as exhibitors.
- ▶ We had just under 100 people attend and they are looking forward to next year.
- ▶ **Take Away:**
 - **Work with all aspects of robotics: Government, Universities, and Industry**
 - **Program engaged a number of members excited to participate in this event**
 - **IEEE gets a lot of publicity when you engage. Many attendees did not know IEEE**

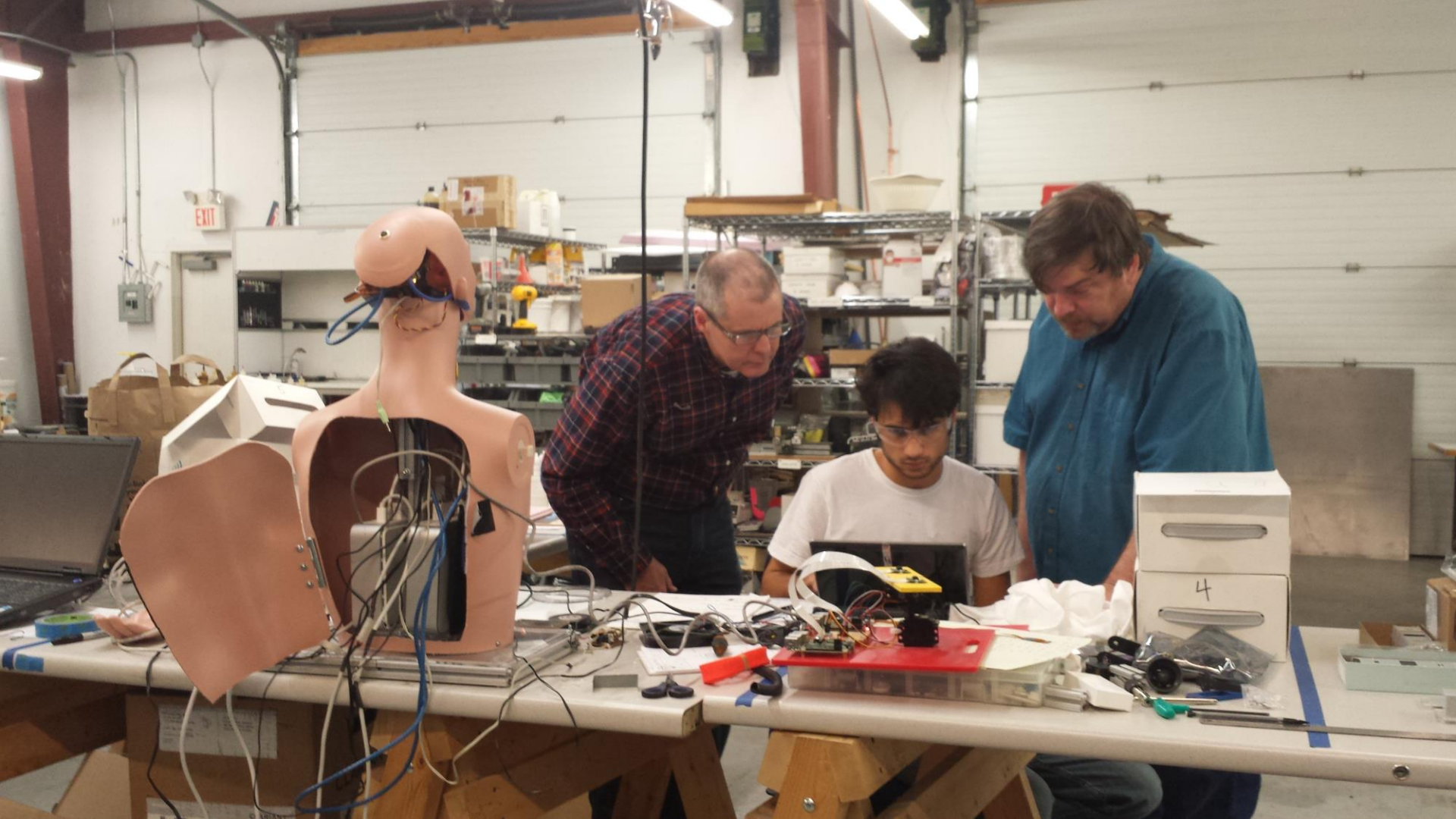


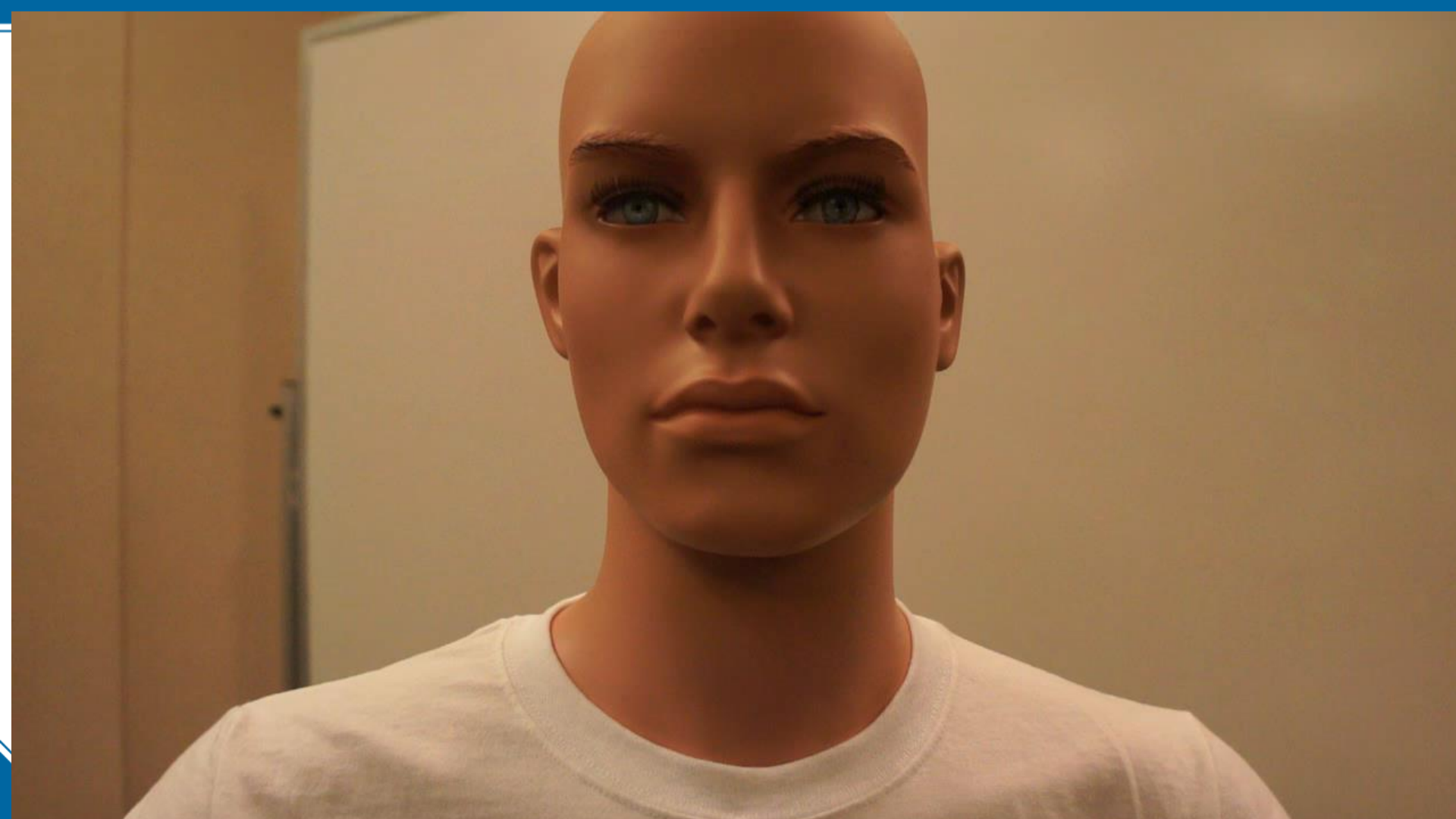
Humanoid Robotics Program

- ▶ Started in 2014 to engage chapter members in a challenging technology program
- ▶ Created to take into schools and to the public to bring awareness to engineering
- ▶ Vision team, AI team, Speech/Hearing team, Structure team, Management team
- ▶ 21 people joined the team in the 1st week, got requests from around the state.
- ▶ Access to IEEE members around the world with unique skills

- ▶ **Take Away:**
 - Engineers love a good challenge – creates engagement
 - Public interest and demo's create new members
 - Great way to engage students to encourage them to pursue STEM fields
 - Looking to engage Universities and Community Colleges in development







IEEE Foundation Stem Outreach using Student-built Humanoid Robots?

- ▶ IEEE Foundation provided a grant to build 4 additional Humanoid Robots
- ▶ Partnership with local 501 C3 working with students ages 7 to 18
- ▶ Students are building the Humanoid robots with IEEE mentors
- ▶ Separate team of University students and professors working with IEEE on next generation robot
- ▶ Goal to reach 4000 students with Humanoid Robot demonstrations

- ▶ **Take Away: Money available from section, council, society, region, foundation...**






IEEE / TFI Humanoid Robot Project

Joint project funded by IEEE Foundation

Goal:

- TFI members work with IEEE engineers to replicate Ken 1.0 and help with Ken 2.0.
- Students and IEEE members will take Ken to over 4000 people in our community in the next few months





MOVE COMMUNITY OUTREACH
AN IEEE★USA INITIATIVE

IEEE
Advancing Technology
for Humanity

- ideas
- power
- charge
- respond

move.ieeeusa.org



IEEE★USA

Brief History

- Truck delivered to IEEE March 2016, based in North Carolina
- Deployed by Red Cross to:
 - 2016 - West Virginia flooding
 - 2016 - Louisiana flooding
 - 2016 – Hurricane Hermine NC
 - 2016 - Hurricane Matthew
 - Tallahassee/Orlando, FL
 - Ft. Bragg/Greenville, NC
 - 2016 - Gatlinburg, TN wildfires
 - 2017 – Missouri Flooding
 - 2017 – Hurricane Harvey
 - 2017 – Hurricane Irma
 - 2017 – Hurricane Maria
 - 2018 – Hurricane Florence
 - 2018 – Hurricane Michael
 - 2019 – Alabama Tornadoes
- Public Visibility Events examples:
 - IEEE Conferences
 - 2017-2018-2019 Atlanta Science Festival (> 25,000 attendees)
 - 2017 National Scout Jamboree (> 40,000 attendees)
 - Sound the Alarm (Home smoke alarm installs)
 - 2017-2018-2019 Red Cross Disaster Institute
 - Many local, regional events every year





*Advancing Technology
for Humanity*



IEEE R&A local chapter current execution

IEEE Monthly Technical and Weekly Project Event Statistics(extra efforts and activities contributed by volunteers beyond registered events)

- Number of R&A events : 229+
- Average number of meetings per year : 60
- Average number of Engineering participants in Monthly Technical Activities per year: 150+
- Average number of contributing cycles of Students and Professional Engineering participants in weekly Technical community projects per year: 250+

IEEE Direct Outreach STEM Motivational Events Public participation Statistics:

- Community exposure involving many thousands at different events – few hundreds to few tens of thousands (app. 20,000+)

Sample Outreach event Video

The interview with Daniel from Maker Faire Burlington 2018 is now live!
Find it here: <https://youtu.be/kHisUrwnAMQ>





*Advancing Technology
for Humanity*



IEEE R&A local chapter current execution (contd.,)

Forge highlights of Forge accomplishments until this year:

- 18000 adult professional volunteer hours/year and technical mentoring
- 8000+ participants/years in hands-on community engagement STEAM activities with 4000 hours K-12 members volunteering
- 100+ students in shorter camps and monthly workshops(FLL, FLL Jr, FTC etc.,)
- 130+ K-12 students in year round informal intensive STEAM learning programs
- About 70 families membership
- In-School hands-on demos, displays at NC TIES, Scaling STEM conferences
- Summer Library Programs, Summer Camps and future Certification program scheme.



Tips

- Provide networking time before each meeting
- Have everyone introduce themselves at the beginning of each meeting
 - Name, where they work, what they do
- Meet with other organizations in your community
 - - find out what they do
- Address all aspects of your member backgrounds:
 - academic, industry, government, defense, makers ...
- Start some projects that connect you to the community and to students
- Make your organization/projects known to the public
- Do projects that challenge engineers

IEEE SIGHT

Special Interest Group on
Humanitarian Technology

Building a locally-focused
community of engineers
for global development

Vision & Mission

Vision

Underserved communities around the world are able to benefit from technology as they seek sustainable solutions to development challenges.

Mission

The Special Interest Group on Humanitarian Technology (SIGHT) program is a network of IEEE volunteers around the globe that partner with underserved communities and local organizations to leverage technology for sustainable development.



IEEE SIGHT Members & Global Community

- Live in 10 Regions & 93 countries
- 4,346 new members in 2018
- 1,255 new members so far in 2019
- 60% are IEEE Student Members
- Active on Social Media: 19,200 members in the SIGHT Facebook group - facebook.com/groups/ieeesight/

What is a SIGHT Group?

A group of at least 6 IEEE members (*additional IEEE and non-IEEE volunteers are welcome*) who come together to

- (1) learn about sustainable development,
- (2) build relationships with local underserved communities and,
- (3) implement projects that leverage technology to tackle key problem within the community.

Photo: Artisanal Fishers SIGHT, India

Why a project?

“Feet on the ground” engagements allow SIGHT groups to apply their unique skill sets to tackle complex local challenges and create positive social impact.

BRIDGES SIGHT, Nicaragua



- *IEEE SIGHT offered four proposal calls in 2018, received 50 proposals from 24 different countries and selected 10 projects to be funded.*
- *Projects include initiatives to install lighting for a playground in Chile, implement an intelligent animal attack prevention system for crop protection in India, provide three rural communities in Guatemala with potable water via a solar-powered submersible pump and filter in the local well - and others!*



R3 IEEE HAC Volunteer Leaders

- **Jim Conrad**, Chair, HAC Events Committee & Humanitarian Activities Coordinator
- **Sunty Arokia Swamy Bellary**, Member, HAC Events Committee
- **Sonya Dillard**, Member, HAC Events Committee
- **Eric Grigorian**, Member, IEEE HAC Events Committee



1. THINK



2. BUILD



3. SIGN



4. SEND

5. APPROVED

Step 1: Think

- Familiarize yourself with the overall SIGHT program and review the list of active SIGHT groups.

Step 2: Build

- Create a team of interested individuals to volunteer.

Step 3: Sign

- The petition to establish a SIGHT contains the following:

- Name of the Parent OU (Section, Student Branch, or Society).
- Name and contact information of the organizer (who will serve as interim Chair pending election of a regular Chair at a later organization meeting—in the case of a University SIGHT, the Chair must be a faculty member).
- Signatures of at least six (6) IEEE voting Members who are Members of the Section/Student Branch/Society involved, and who indicate they will join the SIGHT if established.
- The mission/goals and proposed activities for first year.
- Signature of the Chair of the Parent OU (Branch Counselor for Student Branches) and interim Chair of SIGHT group.

Step 4: Send

- Once you have completed steps 1-3, send the petition to sight@ieee.org for SIGHT Steering Committee (SSC) approval.

Step 5: Approve

- The SSC will review your application. If they have questions or concerns, the committee will be in touch to let you know how you can improve your petition. Once they are satisfied with your petition, your group is approved and you can get going!



Thank you!

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