## 2024 MGA Surplus Funding Proposal

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| **PROJECT TITLE: International Multi- Discipline Hackathon using Communications, Robotics, Computing, Cyber Security and AI technologies**  **PROPOSAL SUBMITTED BY: IEEE REGION 3**  **PROJECT LEAD NAME: Brian Page** |
| **PROJECT DESCRIPTION** *(Include how the requested funds would be expended, anticipated participation, and the desired outcome)***:**  IEEE Student members would identify a problem that needs to be addressed in their region, develop an applicable solution, and describe the benefit of using their solution that would occur for their region. The students will define the problem to solve and produce a working prototype to be presented and discussed with their peers. An example would be to develop an inexpensive WiFi or Software Defined Radio access point for underserved areas that is physically secure and can be easily maintained and supported. The teams can collaborate and integrate Communications, Computing, Robotics, Automation, remote sensing and some form of Al solutions to add value to the project. The requirements would be for each team to have to incorporate 3 of the 4 areas of Communications, Computing, Robotics, and Al. They would have to explain the details of their solution. For example, remote sensing could use Al to analyze data or Cyber security anomalous patterns. Teams could include members of different regions - this project is designed to facilitate teamwork. Diversity will be encouraged, so no one person teams will be allowed.  SouthEastCon 2024, the annual IEEE region 3 administrative and technical conference, is conducting a number of hackathons for college students. They are supplying a Kit for under $100 per team. They have developed rules and materials that we will use as a starting point, and modify it for our event. Technical resources from this hackathon are part of our committee for the proposed event.  The students will have to define the problem they are proposing to solve as well as describe the results. The goal is to develop a prototype solution that can be taken to the next stage of wider implementation. There will be a panel of judges. All locations will be simultaneously streamed.  The budget section will address the requested funding allocations for parts, kit, supplies, meals, awards and miscellaneous expenditures. There are no travel expenses.  The total budget request is for up to $28K. The Atlanta ComSoc section demonstrated fiscal responsibility and accountability for the extremely successful School Series event held in Atlanta in Sept. 2023. There were students from 10 different countries 9 Regions that attended. For this event, travel will not be necessary as all activities will be done remotely.  The project size can be reduced if the IEEE surplus funds would be needed to accommodate additional requests. We will adjust the number of projects based on the amount of the grant.  The request for funds is to cover Kits, parts, components, food, awards and miscellaneous expenses.  The budget will allow up to $200 USD for each region's team to source components and parts that are relevant to their project and location. The use of 3D printing parts is encouraged. The funds will cover up to 100 projects up to $20K.  Kits  ELEGOO Mega 2560 The Most Complete Starter Kit  Product listing - <https://www.elegoo.com/products/elegoo-mega-2560-the-most-complete-starter-kit>  Downloads - <https://download.elegoo.com/?t=Mega_2560_The_Most_Complete_Starter_Kit>  KS0522 Keyestudio 48 in 1 Sensor Kit  Product listing - <https://www.amazon.com/KEYESTUDIO-Projects-Receiver-Tracking-Ultrasonic/dp/B07K6L2VRB?ref_=ast_sto_dp>  Downloads - <https://wiki.keyestudio.com/KS0522_Keyestudio_48_in_1_Sensor_Kit>  The venue(s), at least one in each region, will be provided as "Value In Kind" subject to IEEE guidelines. A Food budget of $5K total will be used to provide a light breakfast, lunch, and an inexpensive dinner at each venue. Accommodation will be provided for different dietary needs as identified by the participants. This will be a one day event unless we have too many participants to present in one day. We will adjust as required based on the number of projects.  The remaining request of $3K would be used for SWAG, Awards and Incidental Materials like banners. The Atlanta ComSoc International School series event is reusing the portable banner equipment.  The actual competition will be one day. Students will demonstrate their solution and there will be awards for first, second and third place for each region participating.  There will be awards for the first, second and third place overall.  We will be pursuing sponsors to participate, judge, and mentor the Students. We also will reuse any SouthEastCon 2024 components that are allowed by IEEE policy. All materials that are paid for by IEEE will be donated to a local STEM or Humanitarian Organization. |
| **Does the project involve more than one Region** (if yes, please name Regions):  IEEE Regions 3, 4, 9. |

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| **How the project shall address member engagement, member retention, member recruitment?**  All participants must be an IEEE member and it is desirable to be part of a local Chapter. Affinity Groups such as YP, WIE, and WIC will be encouraged to participate and support the event. Life Members will also be encouraged to mentor the student teams.  We will advertise and promote this event and membership is required to participate. We have been actively recruiting student members and mentioned that a hackathon is being developed. Details TBA. |
| **Description of the short-term and long-term impact of the project:**  The goal is to increase the awareness of IEEE programs and leave a legacy with equipment being donated to STEM organizations within the participating regions.  The short-term goals are to expand the skills and interest of students in the areas of Communications, Computing, Cyber Security, Robotics and AI technologies.  The project will test and enhance their abilities of creative and critical thinking with projects that are of interest that fit their skill so they can expand their development and experiences.  Longer term, the plan would be to get them to be advocates for their solution and get it deployed in the real world to make a difference. The involvement and promotion of IEEE will be part of the theme. |
| **Project Budget (USD)** (Split % of the budget between Region & MGA):  **Income**  IEEE Region 3, 4, 9 USD $5,000/Region  IEEE MGA Funding (if approved) USD $10,000  Other sources (local funding) USD $3,000  **Expenses**  Project supplies USD $20,000  Food USD $5,000  SWAG USD $3,000 |
| **Software requirements, if any:**  We will have students code for software defined radios, modify robotics code, develop AI monitoring methods for improved intrusion detection and prevention.  Any new software development will be done by the students and advised by mentors to complete the System integration and testing. Public libraries such as GitHub or open-source solutions will be encouraged. IEEE staff are not required to develop software. |
| **Estimated start/completion dates:**  Start Date – July 1, 2024  End Date – September 15, 2024 |
| **Additional sections/comments** |