LEGISLATIVE REPORT

SUBJECT: Robotics Education in Hawaii

REFERENCE: Senate Concurrent Resolution No. 131

ACTION REQUESTED: Address the issues of coordination and support of robotics education programs in Hawaii, including sustainability, financing, infrastructure, educator professional development through conferences and workshops, and related issues raised in this resolution.

DOE REPORT: A planning meeting of representatives from the Department of Education, Hawaii Space Grant Consortium, College of Engineering, Hawaiian Electric Co. Inc., and Maui Economic Development Board will be held to address the issues raised by this resolution. The planning meeting was delayed in anticipation of involving the new State Science Specialist.

Outcomes of the meeting are to:

- Determine coordination lead
- Identify potential solutions for sustainability and financing issues
- Determine infrastructure needs
- Plan educator professional development
- Plan initial coordination of student activities and competitions

Data of activities and potential support sources for the period January 2004 – December 2004:

- KISS Institute for Practical Robotics and NASA Robotics Education (AMES) will be providing $8000 in scholarship/financial aid for Botball teams which had requested funding support. Additional funding will be provided to the Hawaii Space Grant Consortium to recruit new teams with an incentive of 50% of the tuition costs equivalent to $1000-$1300 per team. In addition hosting fees will not increase even if the # of teams goes beyond the current 24.
- An RFP will be coming out of the Lt. Governor's office for drug prevention programs. As Botball involves diverse communities there is a possibility of getting team support through these funds.
- http://www.botball.org Primary sponsors: KISS Institute for Practical Robotics, NASA, corporations. Primary

sponsors in Hawaii: Hawaii Space Grant Consortium, College of Engineering, Hawaii Convention Center, Hawaiian Electric Company, NASA. Offered to middle through high schools, the program uses customized Lego robotics kits and a higher level of software (referred to as IC4 which is similar to C programming language) to design and program autonomous robots to compete in a double elimination, sports style tournament after 6 to 8 weeks of preparation. Offered in regional tournaments throughout the United States. Hawaii became the host of the 12th regional site in spring 2004. Initiated and directed by the Hawaii Space Grant Consortium, the program attracted 23 middle and high school teams from throughout Hawaii in its inaugural year, ranking Hawaii as having the 5th largest tournament in the nation. Team registration fees of $2300 provided a $1000 kit of construction pieces, more than 20 sensors and two robot brains along with the needed software, 2 days of teacher training and participation in the tournament, held at the Hawaii Convention Center. The Hawaii Space Grant Consortium and the College of Engineering have provided the necessary hosting fees of approximately $15,000. In- kind sponsors, the Hawaii Convention Center and the Hawaiian Electric Company, have provided facilities and services for the two-day workshop and the tournament. Several teams received grants through PTAs, foundations and other funding agencies (for example, the Department of Labor's Women in Technology grant provided team registration fees for 5 Big Island teams). Among the public schools which have participated: Keaau Middle School, Waimea Middle School, Waiakea Intermediate School, Honokaa High School, Moanalua Middle School, Chiefess Kamakahelei Middle School, King Kekaulike High School, Maui High School, Washington Intermediate School, Kawananakoa Middle School. For the 2005 tournament scheduled for April 16, 2005, Hawaii Convention Center, there are already 23 teams registered and anticipate 30 or more teams for the coming year.

- Hawaii Underwater Robot Challenge
  http://www.marinetech.org/rov_competition/index.php
  Primary sponsors: Marine Advanced Technology Education Center, Marine Technology Society. Offered to Hawaii high schools since 2003, the program had six

participating teams in its first year with 12 teams participating in the fall 2004 challenge scheduled for December 5, 2004 at the University of Hawaii at Manoa pool. Waipahu High School placed first and Moanalua High School placed second in the 2004 Southern California Regional Competition. The two schools went on to compete in the National Competition's Ranger Class and placed sixth and fourteenth, respectively, out of 23 schools. Locally organized in part by Waipahu High School teacher, Bill Speed, the competition offers an engaging, low cost robotics education and additional challenges of having a robot operating under water. Teams can advance to a national tournament held during the summer. The team registration fees and kits are low, with additional materials optional.