

Engineering Student Technology Committee
Technology Fee Project Proposal
Must be submitted on or before February 9, 2001

Please use this form to request technology fee expenditures for equipment in classrooms, computer laboratories, or other instructional or research laboratories, in keeping with the State Board of Agriculture Charges for Technology Manual guidelines found at <http://www.colostate.edu/services/acns/itec/fee.html>. Technology committee members are available for assistance, the names of whom appear in Section IV. Also see Section IV for submission information.

Section I. Overview

1. Title of proposal

GPS receiver upgrade for Undergraduate Instruction

2. Submitted by (Name & contact information of primary submitter(s) – up to three)

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3. Proposal supported by*

* Proposals with wide-spread support from a cross-section of the college will be given preference. Although this form may be submitted electronically with a list of supporters, actual signatures are required for all supporters beyond the original submitter(s).

4. This project request is

- for student wages
- for software
- to maintain and/or upgrade existing facilities (replacement equipment only requested)
- to augment and maintain existing facilities (some new equipment requested)
- to provide a new facility (all new equipment requested)

5. Brief summary of proposal (Please limit answer to no more than one paragraph)

Current GPS receivers used for Undergraduate instruction are out of date, with some inoperative. Students at CSU should have up to date equipment for laboratory usage to be competitive in the world market. This GPS receiver upgrade will provide students with current GPS technology in numerous undergraduate classes.

6. Location for proposed equipment or software:

Agricultural Engineering Research Center, Foothills Campus

6a. Equipment/Software requested (complete only if proposal is for equipment and/or software):

Specific equipment needed	Number Requested	Unit Cost	Total Cost
Garmin GPS 3 plus Receivers with Data Cables	8	360	2880

Specific software needed	Number Requested	Unit Cost	Total Cost
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Total cost:

Section II. Pedagogical considerations

1. What are the pedagogical goals of this proposal? (Please limit answer to no more than three paragraphs)

Depending on the class, the basics and physics behind the operation of the GPS network will be discussed. Field exercises will be conducted to familiarize the student with the GPS receiver operation. A “search and find” or tracking exercise will be implemented to demonstrate the usefulness of GPS. This will be followed by a mapping exercise. Various applications of GPS technology to solve Engineering problems will be discussed.

2. Why is the request appropriate for the goals stated in #1, above?

(complete only if proposal is for equipment and/or software):

Without operating GPS receivers, demonstrations and field exercises cannot be conducted.

3. Planned course/research benefit:

<u>Course No./Research projects</u>	<u>Number of students affected/semester</u>
CB 104	25
CB204/EV 204	15
ME440/CB466	30
CB471 (senior design)	20
CB 542 (graduate course used for UG Tech elective)	15

4. How will this proposal improve instruction (specific lessons, experiments, exercises affected, etc.)?

(Please limit answer to no more than three paragraphs)

Lessons including satellite acquisition, positioning fixing, navigation, vehicle tracking and GIS integration can all be conducted with these receivers. A variety of these lessons will be conducted in the courses described above. Senior design students will be able to use GPS receivers for their senior project.

Section III. Operation, Maintenance, and Funding

1. What functionality will this equipment provide that is not already available elsewhere in the college?

Functional handheld GPS receivers are not currently available in the College.

2. How many hours per week (M-F, between 7am and midnight) will this equipment be accessible for general student use? (complete only if proposal is for equipment and/or software)

Availability is 8 am to 5 pm, Monday through Friday (excluding holidays). The GPS receivers will also be available for checkout.

3. How will students be made aware of this project? (complete only if proposal is for equipment and/or software)

Equipment will be provided in the classroom during the lessons.

4. Complete either A or B:

A. If this request is for student employee wages, who will be the supervisor of those students?
(the supervisor must sign here if name does not appear in Section I, #2 or #3)

B. If this request is not for student employee wages, who will be responsible for oversight and any installation, ongoing maintenance, or repair for this project?

(the responsible party must sign here if name does not appear in Section I, #2 or #3)

Paul Ayers

5. What operation & maintenance services would be needed from ENS staff? from department staff?

None

6. What modifications of current space will be necessary to install the new equipment (remodeling, wiring, security, furniture, etc.) and what is the source of funding for those modifications?

None

7. What is the estimated cost of operational expenses (supplies, maintenance, supervision, student assistance, etc.) and how will those expenses be funded?

Approximately \$30/year in AA batteries will be funded through RI supplies budget.

8. What other sources of funding (and how much) exist for this project (outside grants, equipment donations, reallocation of existing equipment, etc.)?

8 HP Jornada handheld computers, funded through a research project can be made available for data logging.

9. What attempts have been made to obtain the funding from other sources?

An inquiry to Garmin, Inc. was sent regarding the donation of these receivers. The contact indicated these requests are not normally funded and did not encourage an application.