Project Title: Classroom Attendance Helper – A Microprocessor Based “Green” System

Project Objectives: Develop a solar-power operated embedded device to facilitate accurate bookkeeping of students’ classroom attendance for grading purposes without losing any lecture-time. This noise-free device should capture/scan fingerprints and update a remote database in real-time for a predetermined specific period of time. A web-report should be available online for each valid (WSU) ID. This device is expected to improve classroom and overall productivity. This device can be enhanced to monitor and analyze various activities like classroom attendance and test performance.

Benefits to CS 594 Course: Microprocessor Based System Design (CS 594) course should be directly benefited from this project. Instructor(s) can use this project as a model to explain various microprocessor components and various programming techniques. Students can use this as a model to practice and add new functionalities and/or come up with other project ideas.

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Items Required:
1) Microprocessor and related items
2) Fingerprint Scanner, MAX232, and jumper Wire
3) Solar Module DC Power Source
4) WiFly Shield
5) Soldering Iron and Solder Vacuum
6) Digital Multi-meter, Resistor Kit, ...
7) Project Enclosure

It is well accepted that class attendance is important to successfully grasp the material covered and obtain a good grade in a traditional course offered in the universities [1][2]. Classroom attendance should be a must for Lab assignments. It is equally important that students attend the class on time to keep the classroom environment more productive.

Unfortunately, class attendance is a growing issue in the colleges and universities [3]. All institutions are taking this issue very seriously; different institutions are addressing this critical issue differently [4][5][6][7]. Some institutions are implementing mandatory class attendance policy [8].

We are in favor of having a non-mandatory classroom attendance policy that gives everyone the flexibility to deal with situations like severe illness. However, an accurate monitoring system is required for successful implementation of the classroom attendance policy. We look for such a device that can produce accurate results and that is seamless, time-efficient, and environment-friendly. No such device is currently available.

Therefore, we plan to develop a “Classroom Attendance Helper” green-computing embedded device using currently available low-cost electronic goodies to facilitate bookkeeping of class attendance.

With this regard, we request you to provide us funds to buy the items mentioned above. These items should be reused for CS 594 and CS 594L classes.
References:

1) "To Attend or not to Attend Class, that is the Question" by Zach Weiner; Science in the Sky, 2011; http://scienceinthesky.com/2011/01/06/class_attendance/ 

2) "Skipping class in college and exam performance: Evidence from a regression discontinuity classroom experiment" by Carlos Dobkin, Ricard Gil, and Justin Marion; IDEAS (Article provided by Elsevier in its journal Economics of Education Review), 2010; http://ideas.repec.org/a/eee/ecoedu/v29y2010i4p566-575.html 


4) “Policies Class Attendance”; the University of Texas at Austin, July 2011; http://www.utexas.edu/ce/uex/classroom/policy/class-attendance/ 

5) “Class Attendance Policy”; The University of North Carolina at Chapel Hill, 2011; http://www.unc.edu/~tedmouw/soc112/Class%20Attendance%20Policy.htm 

6) “EE345M Embedded and Real-Time Systems Lab”; The University of Texas at Austin, May 2010; http://users.ece.utexas.edu/~valvano/EE345MSp10.html 

7) “This may be college, but we're still taking attendance by Mark Clayton”; The Christian Science Monitor; 2002; http://www.csmonitor.com/2002/0129/p15s01-lehl.html 

8) “College Is for Everyone, So Attendance Is Mandatory!” by Larry MacPhee; NAUelearning; 2010; http://nauelearning.wordpress.com/2010/05/14/attendancemandatory/