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LONG ISLAND CHAPTER

METALLAGRAM

Volume 58 Issue 8 Chapter website: http://www.matscieng.sunysb.edu/asm/

Next Meeting . . . . . Wednesday, April 19, 2017

Where . . . . . Old Field Club, East Setauket, NY

******* Student Night *******

Oral and poster presentations by Stony Brook University Seniors

Joint Meeting with ESG/ESM Programs

6 pm…Posters Start 6:00-9:00 pm…Yummy Food

7:30 pm…Two Oral Presentations

Members … FREE! Guests … FREE! ASM 25 years … FREE! Students … FREE!

Cocktail-party style is three hours long. Included are seasonal fruit and international cheese display, antipasto display, pasta station, and high end passed hors d'oeuvres. Cash Bar.

RSVP to Chandrani Roy … Chandrani.roy@stonybrook.edu

Directions to Old Field Club

From The Long Island Expressway (495) either direction, take Exit 62 N (Nichols Rd. Rte 97). Follow Nichols Rd. to the end, turn left onto Rte. 25A, go about one mile. Turn right onto Quaker Path (opposite Stony Brook LIRR Train Station) and stay on Quaker Path north 1.3 miles to fork. Stay left at fork onto Mt. Grey Rd. and follow to West Meadow Rd. Turn left onto West Meadow Rd - the Old Field Club will be on the left, after the tennis courts. Physical address: The Old Field Club, 86 West Meadow Road, East Setauket, New York 11733. Telephone: 631 751 0571. Web site: http://www.oldfieldclub.com/.

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The Presentations

"Automated Sealer for Trash Bags and Other Purposes"

Taryn Black, Sergey Gelman, Olivia Higgins, Lauren Slater, Abdullah Yar

A novel automated sealing mechanism for the medical industry which closes trash bags from inside the trash receptacle. This product facilitates the disposal of waste, mitigates interaction with hazardous medical waste, and minimizes time spent tying the trash bag. Three IR sensors and a load sensor monitor the weight and volume of trash and, when the maximum value for a full bag is reached, a linear actuator is activated and a pushing mechanism gathers the top of the bag. A tape sealer then seals the bag and it is ready for removal. A full bag is quantified as 20 pounds or 5 inches from the top of the can. The sensors are to collect data in time intervals which increase as the bag becomes fuller. The system is run on an Arduino microcontroller and a relay is used in conjunction with the linear actuator.

"D.A.B.: Drug Accountability Bracelet"

Chukwuka Otuonye, Nitasha Roy, Teresa Martusciello, Mack McGuinness, Nicholas Olynik

The Drug Accountability Bracelet (D.A.B.) is a wearable device focused on the constant detection of alcohol consumption. This uniquely discrete design is able to detect the existence of alcohol in an individual's system through sweat. Any detected alcohol levels traced in an individual will prompt the device to send a text to a contact person. Additionally, an infrared sensor is implemented to determine if the bracelet is on or off. This allows for more freedom in the lives of post-rehabilitated patients, greater medical attention and constant support.

"Self-sorting Recycling Machine"

Jacqueline McGlynn, Joseph Giambalvo, Kharese Gittens, Oluomachukwu Agwai, Yeonjae Ji

Our design is a Self-sorting Recycling Machine. The machine incorporates the use of sensors to detect and automatically sort common recyclables – glass bottles, plastic bottles, and aluminum beverage cans – through one entry point. The design brings awareness to the importance of proper recycling and tackles a major recycling issue – separation. The primary use of such a device will be most evident in college campuses or other commercial buildings with a significant amount of recycling traffic. The design utilizes infrared sensors to analyze the difference between plastic and glass bottles based on the infrared reflectance; an inductive sensor detects the presence of ferritic and non-ferritic metallic objects; and a capacitive sensor to analyze the dielectric constant of various objects to identify the type of material present. An Arduino Uno microcontroller processes the signals from the sensors and communicates to the stepper motors the direction to place the recyclable in the appropriate bin.

"Emergency Siren Detection System"

Jorge Bonilla, Richard Chen, Aidan McNaughton, Alexander Schreiber

The inability of a driver to perceive and/or locate the source of an emergency siren frequently results in collisions with emergency vehicles. A device capable of detecting and alerting a driver of the presence of an emergency vehicle will act to absolve this issue. The proposed design will detect an approaching emergency siren and inform the driver of its presence and general direction by utilizing multiple frequency detecting sensors. The device's processing unit will be situated inside the passenger vehicle, with the sensors being housed and mounted externally.

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The Presentations (cont.)

"Automated Wiping System"
Diming Lu, Jiawei Zhou, Oliver Lockwood, Richard Pak

The automated wiping system is a device that is used to efficiently and quickly erase the markings on a whiteboard. This device has an adjustable top and bottom bar, which is attached to the top and bottom of the whiteboard, acting as the frame for the device. The frame gives the wheels that are attached to a vertical bar the direction to travel. The vertical bar is assembled piece by piece which allows user to freely adjust the width of the wiper. It also encases the motor that powers the movements of the wheel. On the side that meets the surface of the whiteboard is the dry eraser. This device will clean whiteboards faster and allow the teacher more time and focus on teaching.

"H2Woah - Water Consumption Monitoring Device"
Narmin Hasanat, Zachary Licht, Howard Siegfried, Andrew Sullivan, Antonio Xu Liu

Despite efforts to reduce wasteful water use, showering is still one of the largest contributors to an individual's water consumption. H2Woah aims to provide users with real-time feedback concerning their showering habits in an effort to reduce waste. The minimally invasive showerhead attachment offers a quantifiable and relatable unit in the form of dollars spent per shower, combining the costs of water and energy required to heat it, based on location. A simple LCD display will indicate a live feed of the monetary cost of the shower, and temperature. A compatible mobile application allows simultaneous monitoring of shower usage.

"Steam n' Clean"
Kevin Aguila, Sergio Daly, Daniel Melin, Colin O'Connor, Stanley Shaji

The scope of this project encompasses a fully automated and
programmable steamer with the addition of a UVC light for dissipating bacteria buildup. In order to accomplish this goal, the design was split up into 4 subsystems: motion scan, UV light component, structural housing, and the streaming component. The motion scan moves a follower containing LED lights up and down as it scans the clothing inside the Steam n' Clean section by section. The steaming component, powered by an outlet, is attached underneath the Steam n' Clean device, providing steam to the clothes at a steady rate while the structural housing holds everything together.

"Up-N-Atom Safety Walker"
Richard Pilla, Sean Samaroo, Keemari Thompson, Matthew DeKoning

Currently, wheeled safety walkers are very barebones, consist of cheap parts, and in some cases present new dangers to the elderly and disabled. This design will improve on contemporary designs and incorporate additional safety features. Using ultrasonic sensors mounted on the forelegs, the walker will detect obstacles and alert the user to prevent tripping. The alert will be based around a vibration system. Additionally, a locking wheel brake system will be connected to touch-activated handles and lock the brakes after the handles are released to prevent slipping while sitting or leaning on the walker. The brake locking/unlocking will be operated through the use of a pair of solenoids. Additional pressure sensors will be located within the seat, upon sitting down the user "activates" them and engages the brakes. A switch will also be included to allow the user to either disable the obstacle alert system, wheel brake system, or both.

"Current2"
Rohan Sanyal, Tyler Yee, Naveed Ahmed, Lautaro Epstein, Sebastian Woznicki

Our senior design project is a portable machine that produces and stores hydroelectricity utilizing turbines. The electricity produced is stored within a battery and accessible through an outlet on the same body. The body is semi-submerged in a source of flowing water. It was manufactured primarily through the 3D printing of ABS plastic, as it reduces the rolling resistance the turbines will endure and allows for a higher RPM to produce more energy. To account for ABS plastic not having the same yield strength as the other materials, gear ratios will be used in the turbine to mitigate the torque stresses they will inevitably endure. Rotational energy is captured via internal DC motor generators that output voltage to a charging circuit regulated by an Arduino. The charging circuit then relays voltage to a 7.2V NiMH battery pack which can be used to charge a mobile device via USB.

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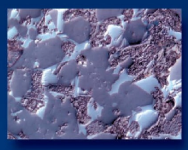
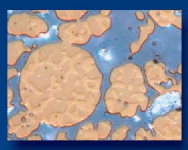

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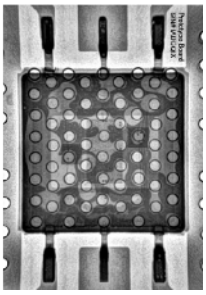

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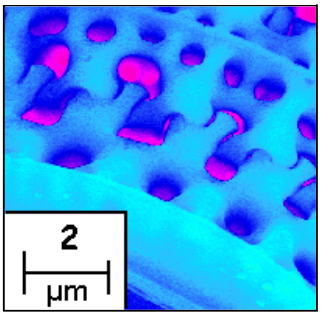

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WELCOME TO THE CHAPTER!

Howard Armas, Nikon *Salvatore Marino, SBU*

All new members, including those who have transferred in from another Chapter, are invited to dine free at a regular meeting of their choice. Please take us up on this offer - come along to the meeting and introduce yourself. This is an excellent way to meet with other Chapter members and to establish new business and social relationships in the area.

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Metro NY-NJ Chapter

(http://www.asminternational.org/web/metro-nynj-chapter/home)

Apr. 25, 2017 Family Night
Topic: Coins
Speaker: Three ASM members
Location: Meson Madrid, Palisades Park, NJ

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Long Island Chapter Meeting Schedule

Nothing scheduled – enjoy the summer!.