Як оформляти постер?

Підготовка

* По-перше, **ОЗНАЙОМТЕСЯ З ІНСТРУКЦІЯМИ**, які надають організатори зустрічі!
* Знаючи **всі деталі** перед початком роботи, вам буде легше успішно закінчити весь процес.
* Більшість з тих, хто прийде до постеру, хоче **не читати**, а скоріше **інспектувати** його.
* Тому ключем до створення ефективного постера є **візуальна простота**, що досягнута без втрати **інформаційного наповнення**

Основні вимоги

* **Читабельність –** ознака того, як легко сприймаються ідеї при переході від одної частини до іншої. Складні речення, перевантажені граматичними помилками важко читати.
* **Чіткість –** якість та величина шрифту така, що з відстані 1-1,5 метра текст можна прочитати і зрозуміти.
* **Просторова організація -** Просторова організація робить різницю між досягненням 95% а не лише 5% вашої аудиторії: час витрачений на пошук наступної ідеї або частини даних – це час, забраний від обдумування наукової цінності роботи.
* **Стислість -** дослідження показують, що ви маєте лише 11 секунд, аби привернути і утримати увагу вашої аудиторії, тому робіть найважливіші заголовки видними і короткими. Більшість з вашої аудиторії збирається запам'ятати лише ці заголовки. Той, хто безпосередньо має інтерес до галузі дослідження, знайде вас так чи інакше і поговорить з вами про деталі.
* **Стиль –** витримання певного стилю справляє враження продуманості і професійності, що додає позитиву в оцінці роботи автора.

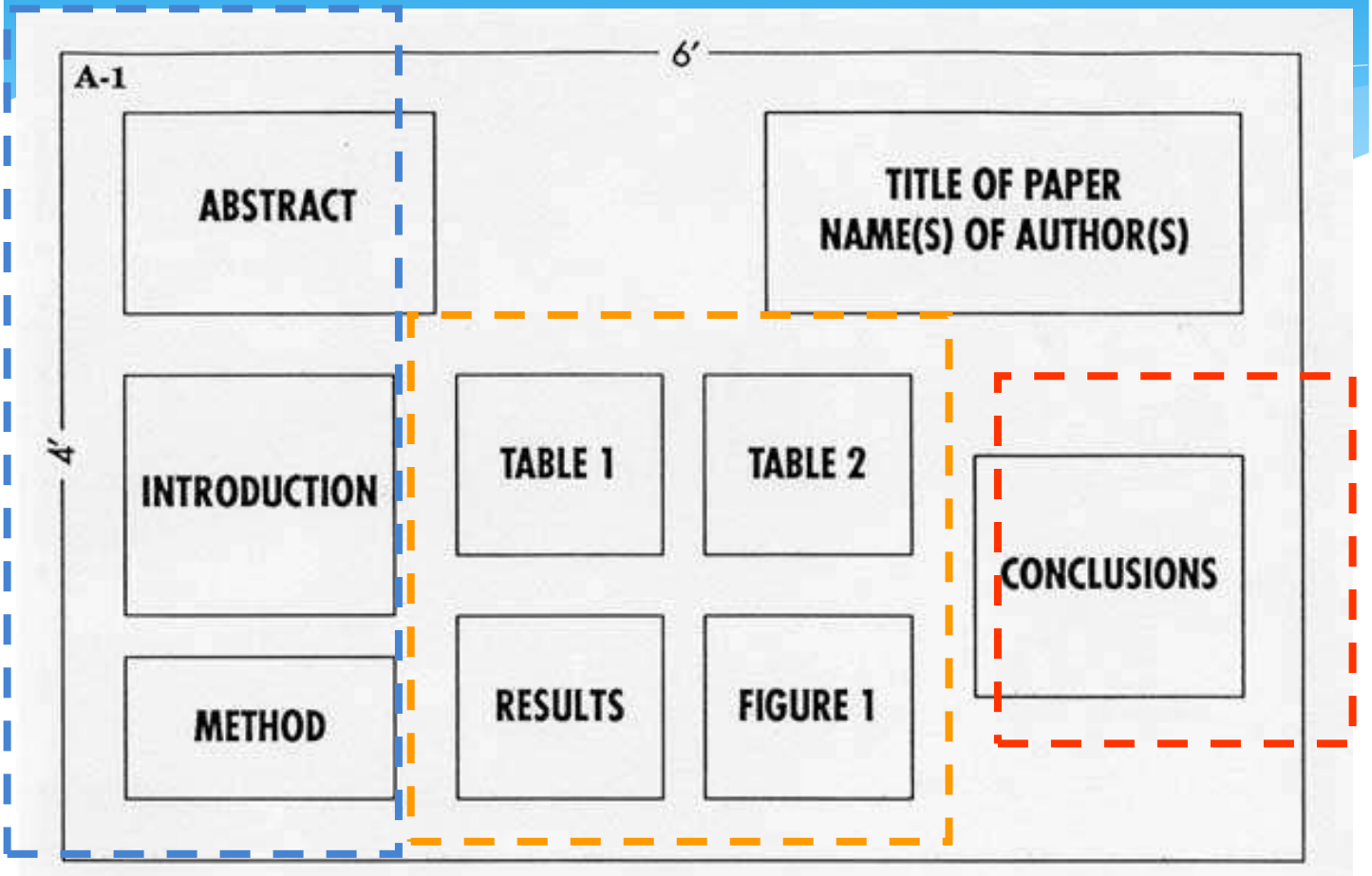
Наповнення

* Зробіть заголовок коротким і інформативним.
* Додайте короткий абстракт для орієнтації оглядача.
* Сплануйте історію, яку ви розкажете слухачу:
  * зміст: що, чому, як ?
  * результати і аналіз
  * важливість результатів
* Використовуйте “мову телеграм” і виділяйте основні положення
* Побудуйте прості графіки і таблиці
* Додайте візуальні матеріали для ілюстрації проекту і результатів
* Облегшіть слухачам можливість слідувати логіці інформації, що пояснює роботу

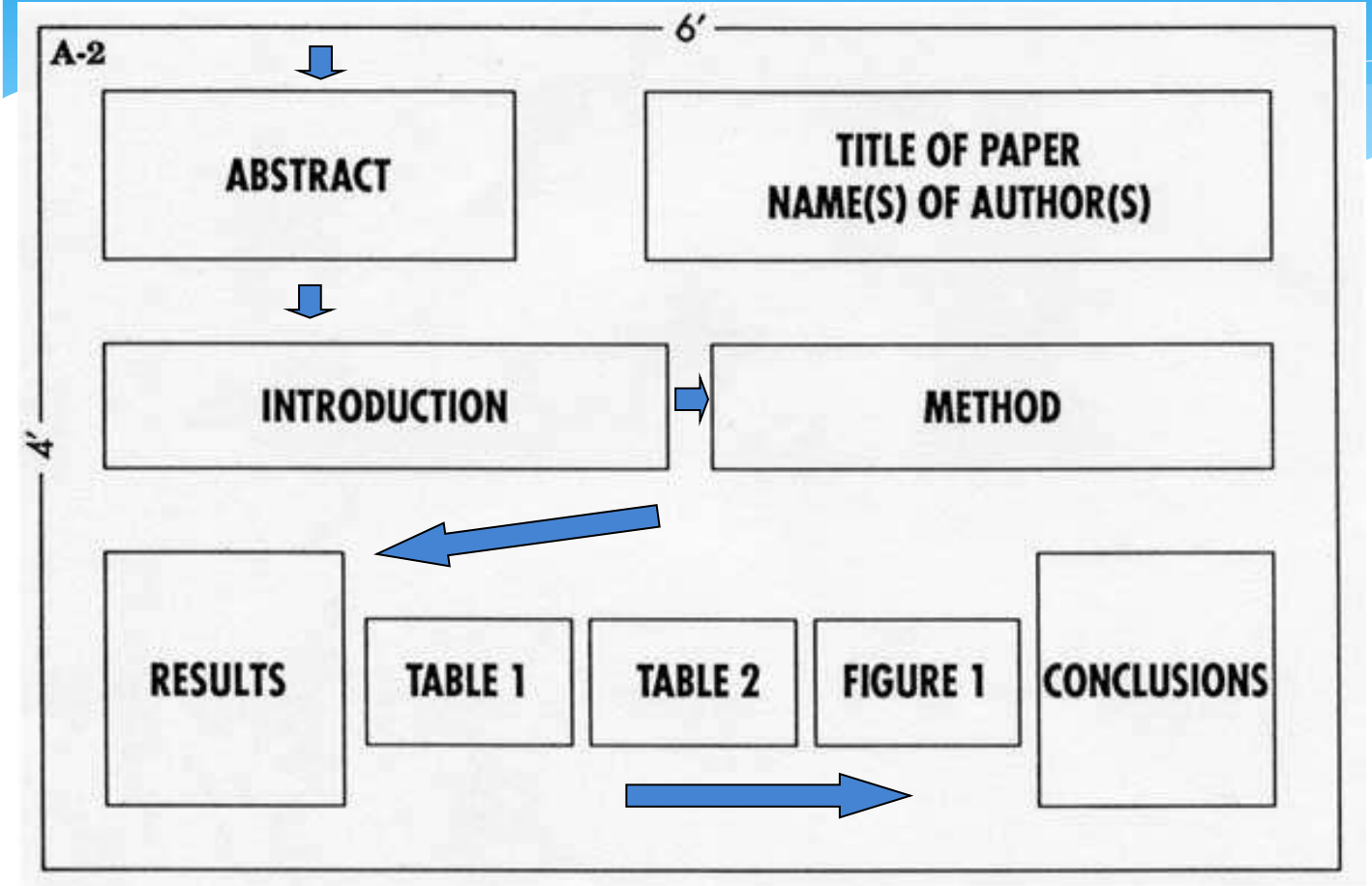
Структура

Мета Гіпотеза Матеріали та методи Хід роботи	Титулка Графіки Іллюстрації Дані та їх аналіз	Результати Висновки Абстракт Інша необхідна інформація

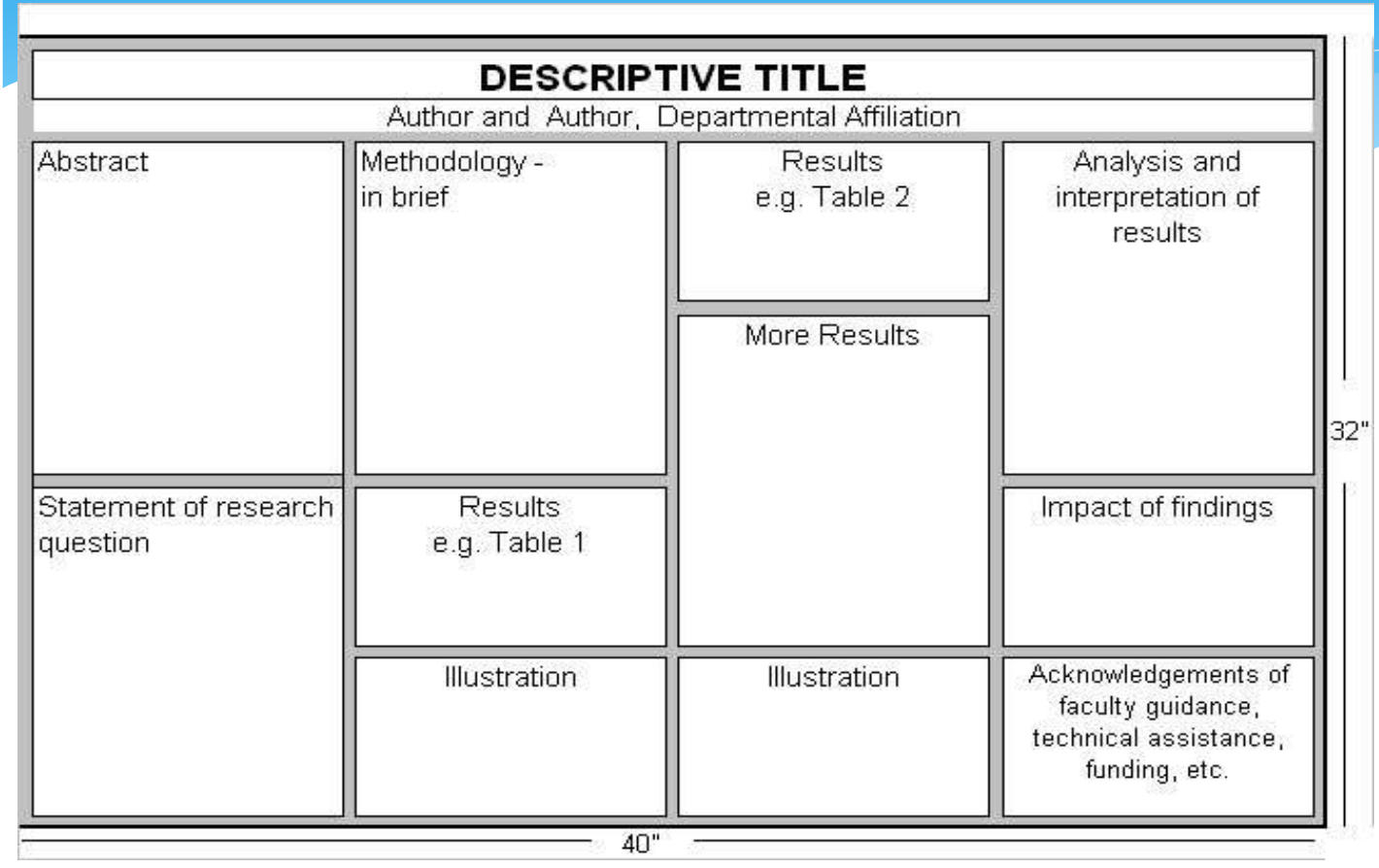
Кластерна схема



Логічна схема



Симетрична схема



Enhanced stabilizing system for wind-driven electric plants

Motivation

Energy saving is a global problem that has no borders.
Traditional energy sources are limited.
Most of the energy production gives are pollution.
Alternative energy sources are very cheap and they are unlimited.
It is especially urgent for Ukraine – most of the energy sources are imported.

THE GOAL

-To develop a new wind velocity transducer that would have higher efficiency and precision
-To increase the efficiency of the developed device.
-To create a prototype of such a transducer.
-To check working capacity and efficiency experimentally.
-To find alternative applications of this device.

Topical question

Advantages of the new transducer

Uses alternative sources of energy that are unlimited.
The reaction on wind flows is invisible.
The electric signal as an output that can be measured (microammeter, PC, etc.).
The body protects the device from the mechanical damage and contamination.
Small size and mass, low cost.

The wind can be measured in any direction due to the plastic gasket ring.
Made out of the improvised material that can be easily replaced.
The influence of external factors, such as temperature, pressure and humidity of the environment, density of the air, etc. is compensated by the design connection.

Developed transducer

Structure:
1.A rod
2.A spindle
3.Plastic and laminate gasket ring
4.Shock-absorber cylindrical body
5.Diameter light receiver 6.Connecting
7.Recording unit support
8.Recording unit
9.Photocells
10.Microcontrollers

Future prospects

The most beautiful and precise is to use the camera motion that has a lot of speed – it gives the opportunity to measure the position of the light mark the light rate very precise and give the result to the PC.
The simplest and the lightest would be using artificial photoluminescent/chemiluminescence. These small devices sizes + (who's knows) electric energy into mechanical one or inductionnic. In such a way the same device can be created not much smaller. This would allow to install these devices almost everywhere (movable cars, planes, shock compressor, rain phenomena etc.)

Can be a part of the global meteorological network.
As a part of it is hard to create outdoor meteo- parameters network deadlines.
The most reasonable would be to use the moving laser light and the diffraction grating. The dispersion of the beam would be measured and the value will be calculated.
The cheapest version can be just laser tubes and mirrows of low light sources, the sunlight would be used(only during the daytime).
The most economical and ecological method is to use solar cells/cells to supply the light source and to recharge its accumulators (so that it has work all night).

Summary

The analysis of the wind velocity detectors used in HYDEP and existing anemometers was made.
The new detector was developed that gives the opportunity to get more precise and afforded measurements results and send them to other units of the control system.
The prototype model of developed anemometer was made.

The working capacity and efficiency was checked experimentally.
The developed detector can be mounted on HYDEP and also can be used in meteorology after insignificant update.
Other possible applications and updates were discussed.

Existing models

Prototype model

Versatile Wind Velocity and Direction Transducer

Problem Statement

Due to constant wind direction and velocity change, the operation of the windmill generators is often sub optimal.

Such problems as the lack of precision, slow reaction time, inability to work in broad temperature ranges, influence of the environment, complexity of the moving parts and fragility take place in the existing patterns of anemometers.

Purpose

Develop a low cost, combined, reliable and accurate wind force and direction sensor, that has more advantages compared to existing ones.

Hypothesis

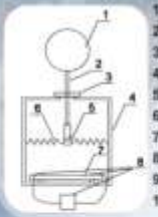
Photocells can be used to measure wind velocity and direction. Precision and effectiveness can be provided by electronic data processing.

Research Procedure

- analyze the existing patterns of anemometers and find their disadvantages
- develop a new pattern that would have less disadvantages compared to the existing ones
- increase the efficiency and precision of the device
- build an experimental model
- check working capacity and efficiency experimentally
- find possible applications of the device

How it works

Structure



1. Sail
2. Spindle
3. Elastic Gasket ring
4. Shock-protected body
5. Directed light source
6. Springs
7. Recording unit support
8. Recording unit
9. Photocell array
10. Microammeters

Principle of operation

The working principle is based on the spring suspended light source and a photocell array below. Light source is connected with the aerodynamic sail via a spindle shaft assembly fixed to the sensor with a flexible elastic rubber gasket. Photocells detect the light position on the array from the source tilted by the wind and induce signal that is detected and digitized. Tilt angles are calibrated with known wind speeds and included in the software prior to operation.

Supporting Software

Real-time measurements
2 modes of operation
Check the flow info easily
Calculate statistics
Build the table
Plot the graph
Send the results to the Web
Save the results

Application

Wind-driven electric plants
Weather stations
Predicting natural disasters
Cranes' security system
Airports
Safer navigation
Narrow water-ways
Anywhere, where it is necessary to measure velocity and direction of gas or liquid flow

Advantages

2-in-1: velocity + direction
High precision and effectiveness
Long lifetime
Few moving parts
No influence of external factors (temperature, air humidity and pressure, etc.)
Low reaction to wind flaws
Low price
Small size & mass
Damage protection
Possible for any gas or liquid flow
Plug & Play interface
Easy-to-use program
Ability to save and analyze the results
USB output gives an opportunity to transfer results in different ways:

Робота над постером

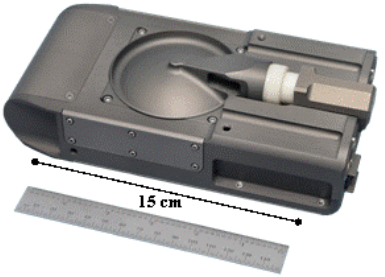
* Плануйте час
* Підготуйте весь матеріал для наповнення
* Виберіть схему постера
* Зробіть ескіз
* Вирішіть питання друку
* Виберіть стиль і колір
* Випробуйте презентацію на друзях, колегах
* Завершіть роботу над постером
* Збережіть елементи і кінцевий варіант постера

Гарні приклади

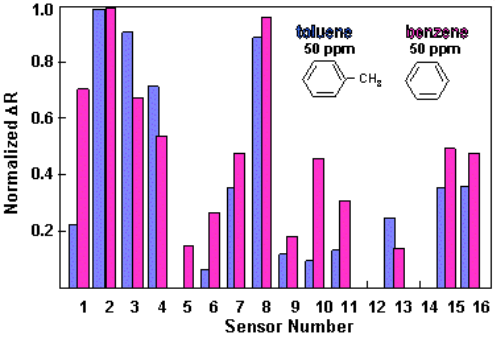
THE JPL ELECTRONIC NOSE (ENOSE)

Jet Propulsion Laboratory
California Institute of Technology

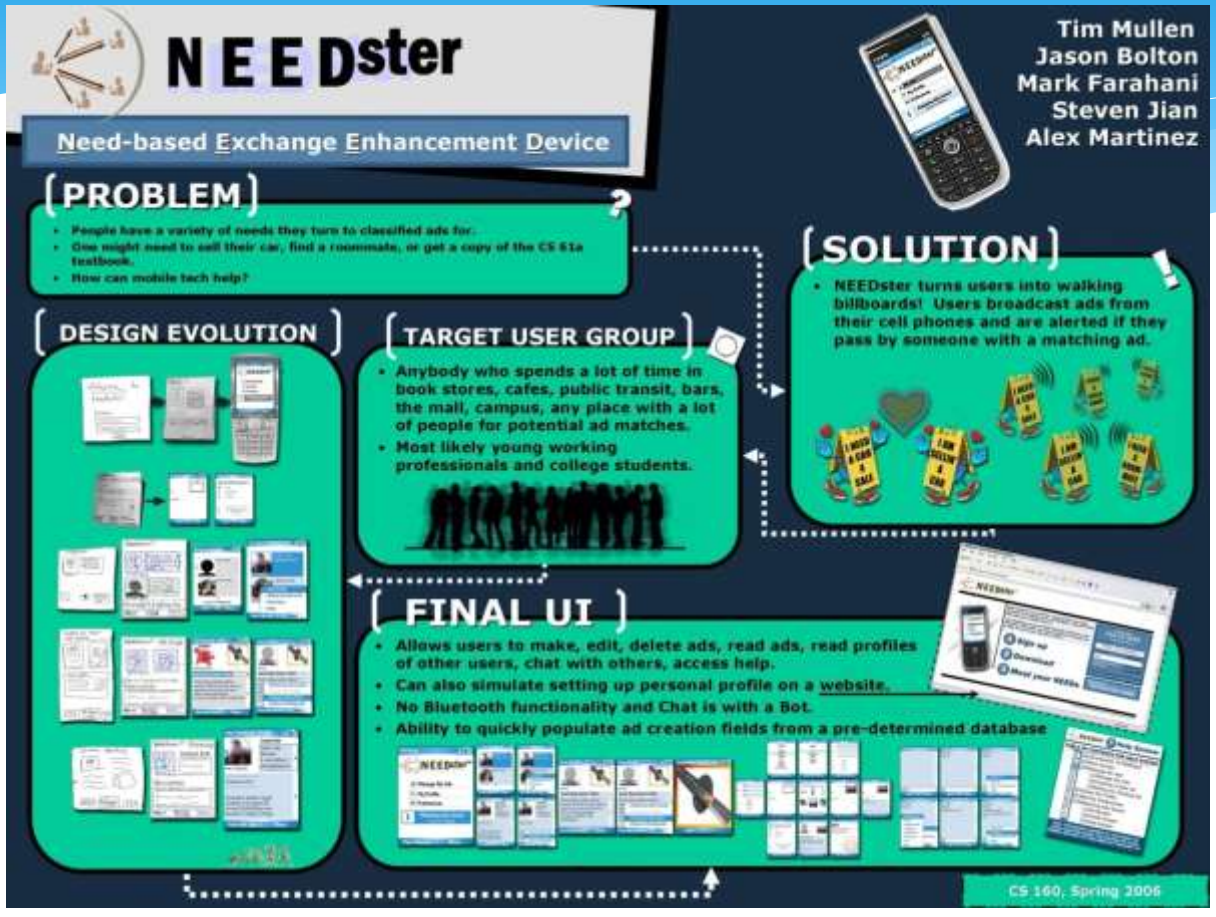
- The JPL ENose provides rapid, early identification and quantification of target chemical species.
- An electronic nose is an array of semi-selective chemical sensors. The JPL ENose is 32 sensors which change electrical resistances when environmental composition changes.
- The sensing array responds in "fingerprint" patterns to a broad suite of target analytes. Fingerprints are deconvoluted for id and quantification.
- Targets include leaks or spills of selected compounds, Hg, SO_2 and possibly heating insulation which signals electrical fires.
- The JPL ENose can be used to monitor cleanup processes.



The Third Generation JPL ENose Sensor Unit
Volume ~820 cm³, Mass ~840 g.
A PDA, laptop computer or Interface Unit can be used to record and analyze data in real-time.



Гарні приклади



Забагато тексту, але гарна ідея фону

A Visual Servoing System for an Aquatic Swimming Robot

Junaed Sattar and Gregory Dudek, Centre for Intelligent Machines, McGill University

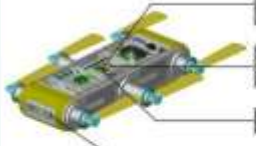
Introduction

Controlling underwater robots in real time is challenging since radio communications are infeasible in sea water. For this reason, using visual cues for autonomous navigation is an attractive option.
In recent work we have developed and deployed a swimming robot called AQUA[1] that uses legged motion to swim and navigate underwater. In this work, we have successfully designed and implemented a visual servoing system for the AQUA amphibious platform that enables it to track and follow a target underwater[2].

The AQUA Robot

AQUA is a direct descendent of the Rhex hexapod robot, a biologically inspired platform capable of swimming as well as walking using six 'legs' or flippers. These legs generate thrust for propulsion and also act as control surfaces for navigating underwater. Three cameras are currently housed in the robot, one of which provides digital output via the IEEE1394 (aka Firewire) bus. For visual servoing, frames from this camera have been used.

Visual Servoing Hardware

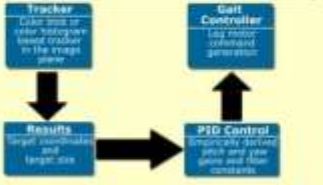


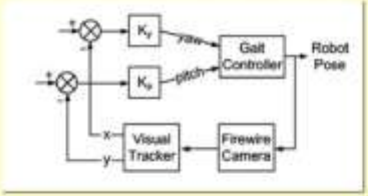
- Vision processor: a Pentium M CPU on a PC104/Plus form factor, running Linux
- Control processor: a Pentium CPU on a PC104/Plus form factor
- PC104/Plus IEEE1394 controller card
- IEEE1394 (Firewire) Digital Camera, 640x480 resolution

Visual Servoing Software

- Vision code written in C++, based on the VXL vision libraries, running under a customized version of Linux.
- Color blob tracker works in the hue space. Both trackers are tuned automatically at the start of the tracking sequence by looking at the target object and setting color parameters.

System Overview





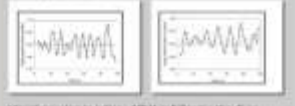
Experimental Results

- At the first trial in January 2005 at Barbados, the robot successfully followed a yellow ball of 15 cm diameter in the open sea under natural lighting conditions for over 25 meters in a straight line. The target was approximately 2 meters in front of the robot.
- Only the color blob tracker was used.
- Due to the absence of tuning data, the pitch and yaw commands were seen to overshoot the target during some runs. Strong underwater currents and a lack of a stability control mechanism contributed to this behaviour as well.
- Integration with an Inertial Measurement Unit in later experiments have provided stable roll control, and it can also be used to smooth out oscillations in pitch and yaw commands.

Experimental Results (Contd.)

- The output from the color blob tracker. The raw captured frame is to the left, while the segmented frame is to the right. The tracker was tuned to follow a yellow colored object.

- Yaw (below left) and Pitch (below right) command plots against time over a single run of visual servoing. The center line is the average value of the yaw commands; the dotted line in the pitch plot shows the average value of the pitch commands.



- Visual servoing in action: AQUA is following the diver holding a yellow ball as a target. Yellow was chosen as the target color since it gave the maximum contrast from the surrounding marine environment.

Conclusion

- The approach to servo-control for AQUA is inherently simple and enables AQUA to achieve some degree of autonomy in navigating underwater.
- A tracker that explicitly models the motion of the target would provide robust tracking and reduce the effect of false targets and poor lighting conditions.

References

1. [illegible] et al., "[illegible]," [illegible] IEEE/RSJ International Conference on Intelligent Robots and Systems, 2004.
2. J. Sattar et al., "A visual servoing system for an aquatic swimming robot," to appear in IEEE/RSJ International Conference on Intelligent Robots and Systems, 2005.

Мілкий текст, але гарна структурованність

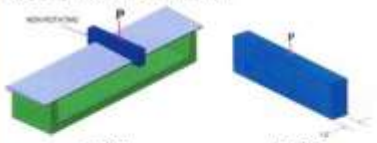
SUPER LIGHT WEIGHT COMPOSITE WING DESIGN CONTEST SAMPE 2008

Cedric Jacob, John Gangloff, Raymond McCauley, Nicholas Counts, Jason McLaughlin
University of Delaware – Center for Composite Materials – Department of Mechanical Engineering

INTRODUCTION

Design Challenge:
"To build an ultra light composite wing with the highest ratio of applied load to wing weight (P/W?) at a maximum 2.5 inch deflection."

Additional Goals:
- Maintain dimensions of 28" length X 8" width
- Optimize the wing to endure 3-point bending failure with applied load to load collar
- Straight wing with constant surface cross-section



Maximum Airfoil Geometry

PROCESSING

Vacuum assisted resin transfer molding (VARTM) was used to infuse carbon fiber with an SC-15 resin. An inlet and outlet hose is placed within a sealed bag before attaching a vacuum pump. Atmospheric pressure then forces the resin throughout the wing. Excess resin was drawn into a pressure vessel under a vacuum. Much attention was given to the path of the resin. Carefully placed media allowed the resin to distribute throughout the carbon fiber.

VARTM Layup of Wing Prototype

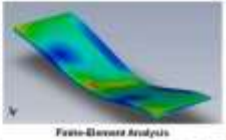
TESTING

To simulate 3-point bending related to the actual competition, test wings were loaded using an mechanical testing machine. This machine is able to plot the displacement of the head versus the load imposed on the wing. Here the load arm is directly placed on out load collar.

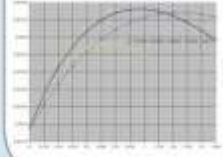
Mechanical Testing of Wing Prototype

THEORY

SolidWorks © COSMOSXpress was used to calculate the area moment of inertia for different cross sections and the resulting wing mass. This allowed us to optimize the cross sectional geometry and fiber layup. Displayed is the initial finite-element analysis (FEA) of the wing design.



Finite-Element Analysis



Mathematical Modeling

To assist in the design process, a model was created to optimize the composite layup arrangement with geometrical and material data. Displayed is a chart that compares specific area moment versus carbon fiber strip width for different numbers of carbon fiber layers. Optimization of this data furthered the design process to isolate the best arrangement for the final design.

CONCEPTS

MANUFACTURING

5-axis CNC Mill

A 3D solid model of the wing was created using SolidWorks © software package. The geometry of the wing foam core could then be imported to a 5-axis CNC mill. The mill then automatically machined the core out of Divinycell.

Testing of the wing under 3-point bending required a loading collar. Our collar was made to the specifications of the one that will be used in the competition. It was fabricated out of stock aluminum with the cross-section of the wing.

Machined Load Collar

CHARACTERIZATION

To obtain a greater understanding of the wing design, conventional testing specimens were manufactured from wing materials adhering to ASTM standards. Using the ASTM standard, the team was able to characterize the carbon / SC-15 composite system for Young's modulus, ultimate yield strength, and ultimate tensile strength. These properties were then coupled with our mathematical models to optimize our design concepts. In addition, the team was able to observe how different fiber layups failed and determine the best layup pattern for the contest specifications. **Note: material specimens were obtained directly off of previously tested wings.**

ACKNOWLEDGEMENTS

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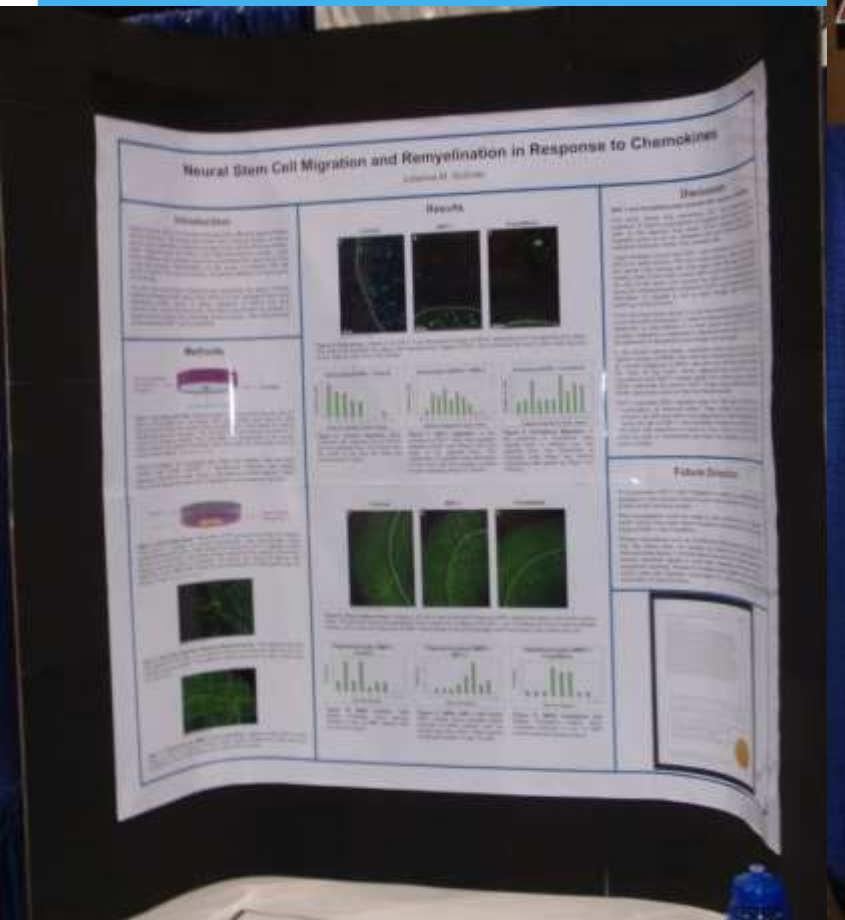
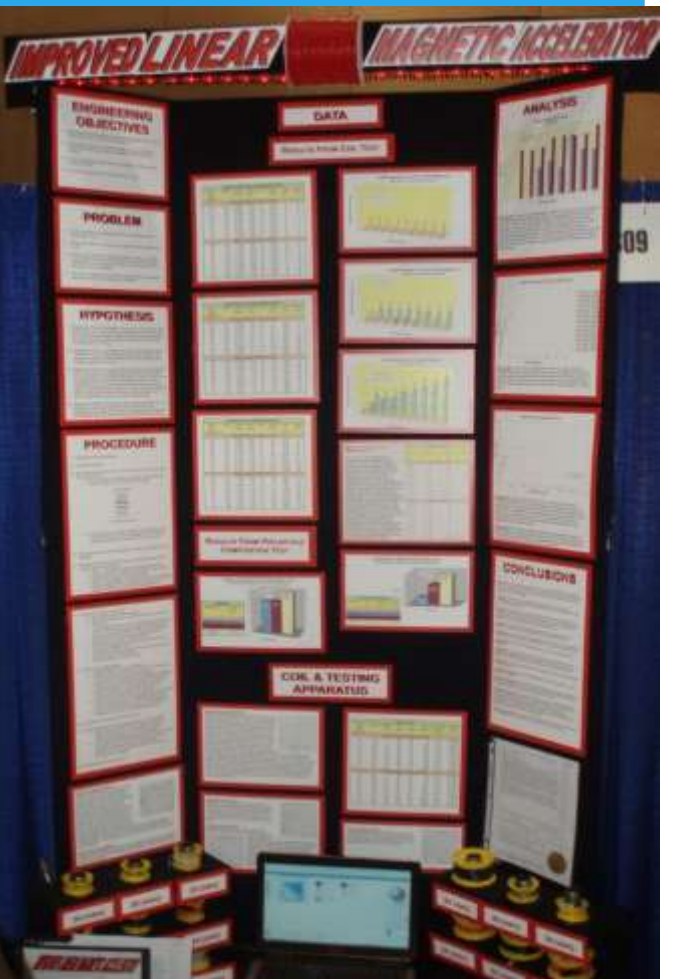
Dr. John W. Gillespie, Jr.
"C" Josiah Hughes
Kyle Brand
Amanda Lim

Stephen Anderson, Hope Deffor, Connie Hamed, Dr. Dirk Heider, John Thiravong, Anthony Thiravong
Additional CCM Faculty and Staff

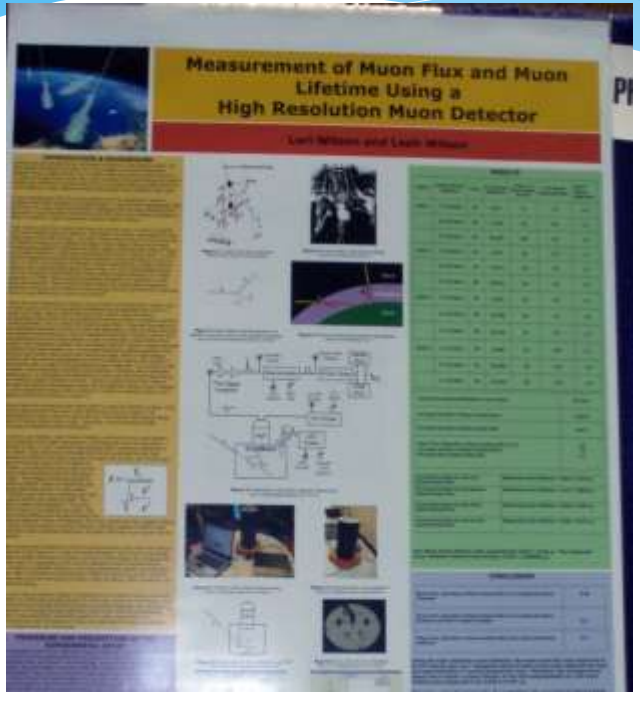
Марнування вільного місця та поганий фон

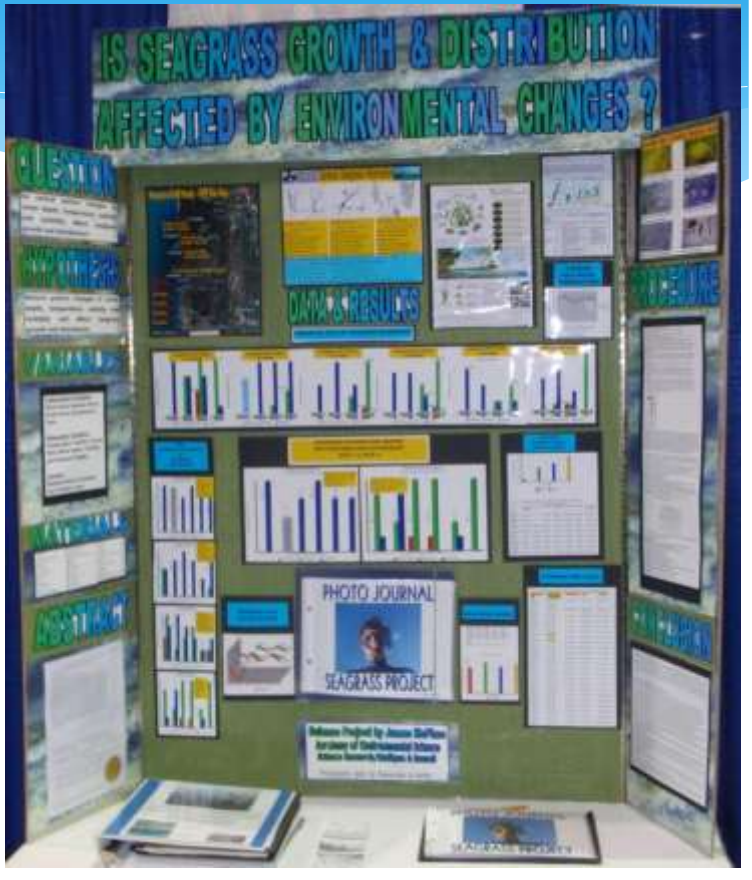
Замілкий текст та погане оформлення



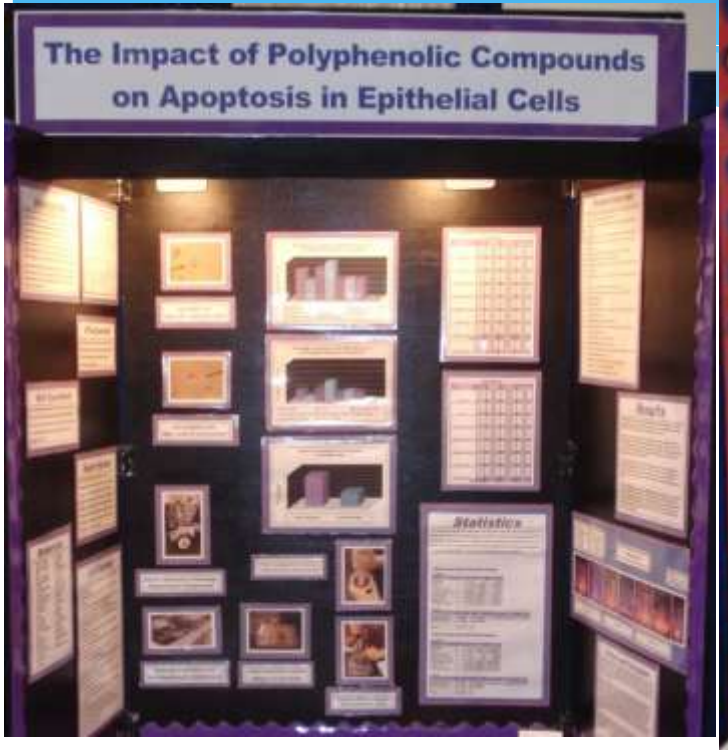


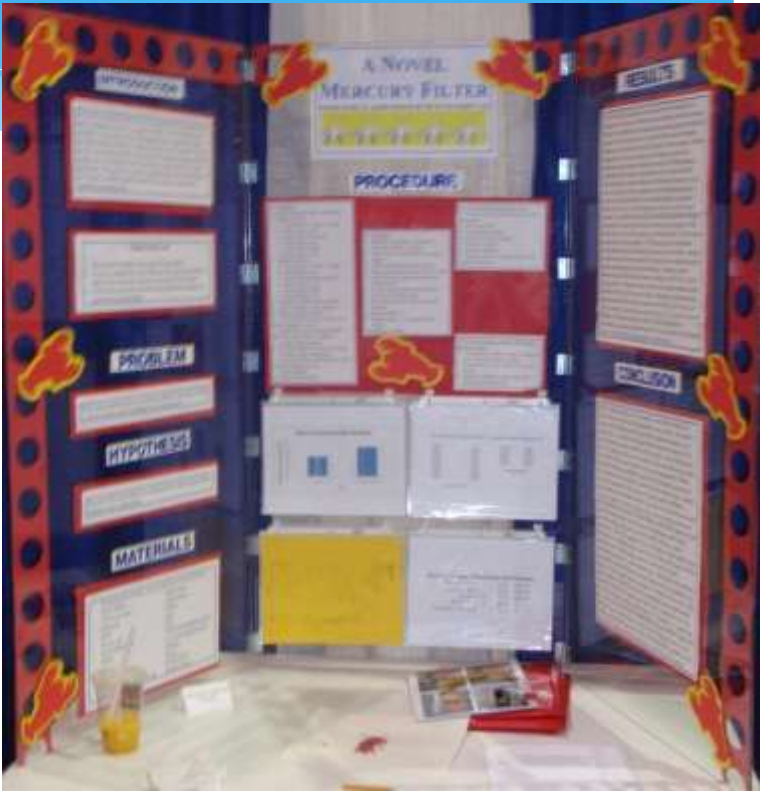
Гарна титулка, але забагато тексту, праворуч завеликі заголовки





Мрачний фон та нема стилістичного оформлення





Приклади


Voltaic Analysis of "Citrus limonum", "Citrus paradasi", "Allium cepa" and "Solanum tuberosum"


The Motion of Wrightia religiosa Benth. Seeds
SAROCH LEEDUMRONGWATTHANAKUN
Results

Чорт зна шо ☺

Бажаю успіхів!

Дякую за увагу!