



Department of Science and Technology
Science Education Institute
Engineering Research and Development for Technology

4th ERDT CONGRESS

CALL FOR POSTERS

*"Agriculture and Science and Technology
for Inclusive Growth"*

**Deadline of Submission of Abstracts:
10 April 2015**

20 July 2015

SMX Convention Center
Pasay City, Philippines



ERDT

Engineering Research and Development for Technology

College of Engineering, University of the Philippines - Diliman

Room 201, Melchor Hall, U.P. Diliman, Quezon City

Tel. No.: 981-8500 loc. 3160; 434-0304 (telefax)



DOST-SEI

9 March 2015

TO: ERDT Scholars
On-going 2nd Year MS
On-going 2nd Year PhD
On-going 3rd Year PhD
On Extension, MS and PhD

FROM: DR. AURA C. MATIAS
Dean, UP College of Engineering
Program Leader, ERDT

SUBJECT: SUBMISSION OF ABSTRACTS AND POSTERS FOR THE 4TH ERDT CONGRESS

Food security and a continuing growth in world population are two mega-needs that interact in a way that they can only become more palpable and not eclipsed by other needs. These two needs require multidisciplinary approaches, such as those that fuse science and technology with socioeconomics. For the Engineering Research and Development for Technology (ERDT) to impact food security, it must combine S&T, agriculture and social and economic factors. In particular, inclusive growth means among other things equal access to markets, opportunities and resources. The role of the ERDT is to develop not only technologies but also a framework (e.g., intellectual property) by which these solutions can be made available to all sectors of society.

This **20 July 2015**, the ERDT will be once again conducting its annual Congress at the SMX Convention Center, Pasay City. Recognizing the pressing concerns of the agricultural sector and the possible contributions that the science and engineering community can provide, the theme of this year's 4th ERDT Congress is **"Agriculture and Science and Technology for Inclusive Growth."**

The ERDT Congress is a yearly event where researchers, ERDT Scholars, visiting professors, industry, government, and other experts gather and get inspired by plenary lectures of highly distinguished professors and experts all over the world. It also seeks to provide a venue for ERDT scholars to publish their academic works through poster competition.

In line with this, ERDT scholars whose statuses are on-going 2nd Year MS, 2nd Year PhD and 3rd Year PhD, and on extension MS and PhD scholars are **REQUIRED** to submit a 300-word abstract of their research to their respective ERDT-Consortium University Project Staff not later than 10 April 2015.

Submitted abstracts should include or specify the ERDT R&D Track where the research is best categorized. Abstracts should only contain one (1) name of ERDT R&D Track.

For this year, the 4th ERDT Congress has 6 ERDT R&D Tracks namely:

- (1) Agriculture R&D Track (Special Congress R&D Track),
- (2) Environment and Infrastructure R&D Track,
- (3) Energy R&D Track,
- (4) Information and Communications Technology R&D Track,
- (5) Semiconductor Materials and Electronics R&D Track, and
- (6) Manufacturing and Machinery R&D Track.





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The important dates to remember are the following:

10 April 2015	Deadline of Submission of Abstracts
14 April 2015	Notification of acceptance and request for revision, if needed
20 April 2015	Deadline of Submission for Revised Abstracts
29 May 2015	Deadline of Submission of Poster (softcopy), No Extension
20 July 2015	4th ERDT Congress

Below is the list of ERDT Project Staff and their respective email addresses where abstracts, revised abstracts and posters should be submitted:

University	Project Staff	Email Address
ADMU	Arianne Ferrer Joannie Jaramilla	asferrer@ateneo.edu jjaramilla@ateneo.edu
CLSU	Precious Sibulburo	pjsibulburo@clsu.edu.ph
DLSU	Amabelle Ayop	erdt_dlsu@yahoo.com
MIT	Lorraine Hilario	mapua_erdt@yahoo.com
MSU-IIT	Doruthee Mugot	erdt_msu_iit@yahoo.com
UPD	Joy Bolina	erdt_up@yahoo.com
UPLB	Paully May Valencia	paullymayvalencia@yahoo.com
USC	Divina Palacio Grace Abangan	divinapalacio20@yahoo.com grace_abangan0817@yahoo.com

For reference and guidance, attach in this letter are the following:

- (1) Guidelines and Format for Abstracts Submission,
- (2) General Guidelines for Poster Submission, and
- (3) Sample Layout of Poster.

The ERDT is very excited to see the fruits of your research and we will be happier to see you participate in this year's ERDT Congress.

For queries, you may contact your respective Consortium University project staff.

For more information on this event, please visit ERDT website at www.erdt.coe.upd.edu.ph.

Sincerely yours,

DR. AURA C. MATIAS

Cc. ERDT Project Leaders
 Dr. Evangeline P. Bautista, ADMU
 Dr. Ireneo C. Agulto, CLSU
 Dr. Rosemary R. Seva, DLSU
 Dr. Jonathan W.L. Salvacion, MIT
 Atty. Edgar Alan A. Donasco, MSU-IIT
 Dr. Augustus C. Resurreccion, UPD
 Dr. Arnold R. Elepaño, UPLB
 Dr. Evelyn B. Taboada, USC



GUIDELINES AND FORMAT FOR ABSTRACTS SUBMISSION

ERDT R&D Track: _____

RESEARCH TITLE

Juan S. dela CRUZ^{1,*}, Pedro T. SANTIAGO¹, Manuel K. GARCIA²

¹ University 1, address

² University 2, address

Abstract

Maximum number of words (including articles) must be 300. The abstract must be concise in describing the background, theory, methodology, experimental investigation, results, and conclusion of the study.

The abstract shall be in paragraph format. An outline is not accepted and paragraphs should not be put under outlined topics or subtopics: The submitted abstract must appear similar to this template.

Authors of accepted abstracts shall be notified to proceed in their posters. Accepted abstracts will be part of the proceedings of the 4th ERDT Congress.

It is required that the first author of the abstract and poster shall be an ERDT scholar. Please take note of the important dates of submission of abstracts and posters.

Keywords: 3 to 5 words

* Corresponding author: email address

GENERAL GUIDELINES FOR POSTER SUBMISSION

1. All soft copies of posters for submission must be in a ready to print 3ft. x 3ft. sized JPG format canvas.
2. The poster must have a good resolution so that it will have a good quality when printed.
3. Fonts must be in black. Headings shall be at least 48-point font and text not less than 24-point font.
4. Keep it simple but add enough graphs, charts, tables, pictures, etc. to make it interesting. Organize the materials properly for ease of reading. As much as possible, use light-colored background.
5. Use headings such as "Statement of the Problem", "Theoretical Framework", "Significance of study", "Methodology", and "Results".
6. Check websites on "How to make a good Poster Presentation".
7. Please submit the document (in JPG format) not later than **29 May 2015 (No Extension)** to your respective *ERDT-Consortium University Staff*.
8. Please see attached sample poster presentation.

POSTER SAMPLE LAYOUT

Department of
Science and
Technology



Department of
Science Education
Institute

Wireless System for Pregnancy Detection in Cows by Monitoring Temperature Changes in Body

Abdul Hadi Nograles & Felicito Caluyo

ABSTRACT

Wireless system was designed to measure body temperature remotely and detect early stage of pregnancy in multiple cows which consists of Personal computer (PC), Xbee modules and MATLAB program. The Xbee transmitters with the LM35 temperature sensors were attached under the tail head of the cows. The study investigated whether body temperature increases in cows after 5th to 12th day after insemination as suggested by previous study that an increase in milk or body temperature could be an indicator of an immune response of the mother to the entry of embryo into the uterus. A significant increase in body temperature was noted after insemination in the pregnant cow and otherwise in the non-pregnant cow. The results obtained in the study could suggest that low cost, commercially available electronic components and materials could be used as non-invasive pregnancy detection in cows with range of up to 40 m without human intervention.

INTRODUCTION

Importance of Pregnancy Detection in Cows

- Pregnancy detection is an important aspect of herd management in any livestock operation.
- During pregnancy detection in cow, the age of the calf and calving date can be predicted. This can be used as an advantage since cows that are expected to calve can be separated from the herd. This reduces herd size and also eliminates food shortage.
- In addition, calving in a clean environment of the cow after a difficult calving will help prevent reproductive problems. Poor nutrition and perhaps herd with infectious diseases can cause some cows to have poor fertility prior to mating. Various abnormalities in cows can result to infertility. These abnormalities can be detected when cows are pregnancy tested.
- Milk yield peaks about 2 to 3 months after calving and milk yield declines (mammary function) for the next 7-8 months and eventually milk synthesis decrease drastically at 10 months after calving. To initiate new lactation, the cow must become pregnant during that 10 months and calve again. Pregnancy is essential for milk production. The complete development of the mammary gland and initiation of lactation primarily depends on a successful pregnancy.

Several Existing Methods in Pregnancy Detection



- Rectal Palpation**
 - ✓ Traditional, cheap, and most convenient
 - ✗ Inaccurate
 - ✗ Requires skills and Practice
 - ✗ Risk of injury, damage or abortion of calf



- Portable Ultrasound**
 - ✓ Accurate
 - ✗ Expensive
 - ✗ Takes time to perform
 - ✗ Unlikely to be adopted in large scale

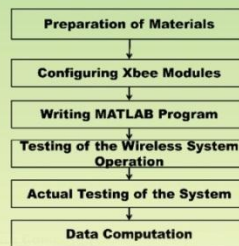


- Blood and Urine Samples**
 - ✓ Higher Accuracy
 - ✗ Require laboratory
 - ✗ Invasive
 - ✗ Takes time to perform
 - ✗ Unlikely to be adopted in large scale

Study by Z. Gil et al,

- ✓ Showed that increase in milk or body temperature could be an indicator of immune response of the mother for embryo transfer in the uterus.
- ✓ Based on previous study of Z. Gil et al (they studied 210 cows for 3 years)
 - 94 pregnant cows in which almost 90% showed increase in temperature was observed
 - 116 non pregnant cows did not show increase in temperature

METHODOLOGY



OBJECTIVES OF THE STUDY

- To design and implement a wireless system for proper identification and for measuring and monitoring temperature of cows (multiple) for pregnancy detection.
- To design and construct a pregnancy test for cows using commercially available components.
- To devise a coding system using wireless transmission system for proper cow identification.

CONCLUSIONS

The wireless system designed and constructed can be an alternative way to detect pregnancy by using the temperature recorded. The components used are available in Philippines, low cost and easy find. The temperature readings recorded by the system showed the expected range of body temperatures in normal cows. The system was able to filter the data, compute for the significant increase in temperature in pregnant cow. The measurements were obtained remotely without human intervention and non-invasive. Xbee modules are also very low power consumption device. This device is long range and makes it more convenient to measure temperature. Continuous monitoring of temperature in cows is also possible. This can be very advantageous in cow management, especially when cattle care takers have limited time and skills in the field. The temperature readings were recorded and use for future reference and for record keeping.

RESULTS

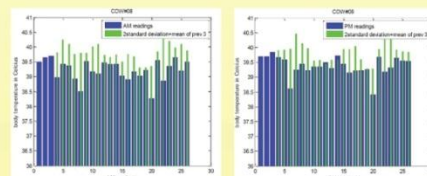


Fig 1. COW#08 Non Pregnant Cow Temperature Profile during mornings

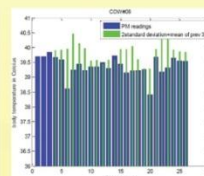


Fig 2. COW#08 Non Pregnant Cow Temperature Profile during afternoons

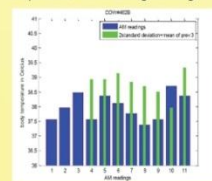


Fig 3. COW#462B Pregnant Cow Temperature Profile during mornings

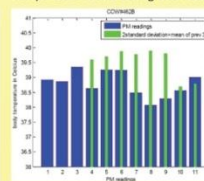


Fig 4. COW#426B Pregnant Cow Temperature Profile during afternoons

- The Increase in body temperature would be significant if the temperature was at least 2 standard deviation higher than the mean of the previous three readings. The increase in temperature occurs between 5th -12th day after insemination. This increase is an indicator of an immune response of the mother to the entry of embryo into its uterus
- In Figures 1 and 2, there were increase noted on the 5th day and 7th day after insemination of about 0.06 and 0.14 Celsius which were insignificant.
- In Figures 3 and 4, a significant increase in temperature was noted of about 0.75 Celsius at the 10th day after insemination (AM). In addition, an insignificant increase of about 0.21 Celsius was noted on the 11th day (PM)
- The state of pregnancy was verified by visual observations:
 - Red swollen vulva
 - Mounted to other bull
 - below

Acknowledgement

Office of City Veterinary and Agricultural Services
Mapua Institute of Technology
Department of Science and Technology (ERDT)

Wireless System for Pregnancy Detection in Cows by Monitoring Temperature Changes in Body
Abdul Hadi Nograles
Mapua Institute of Technology

Further suggestion: Conclusions can be bulleted for ease of reading.