

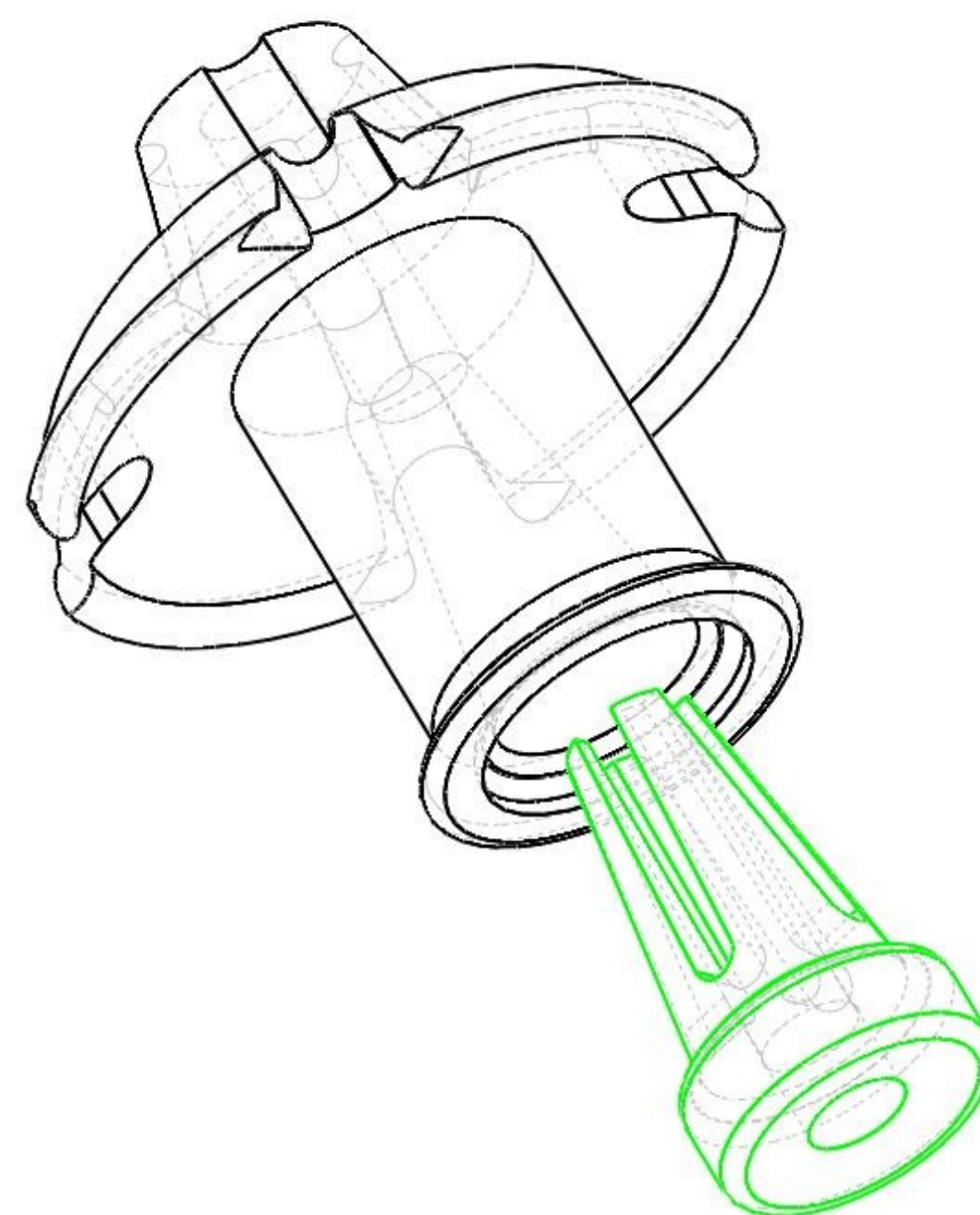
# THE NEW DESIGN OF THE MECHANICAL INDUCTION LABOUR KIT - "CLOVER SET"

INNOVATORS:



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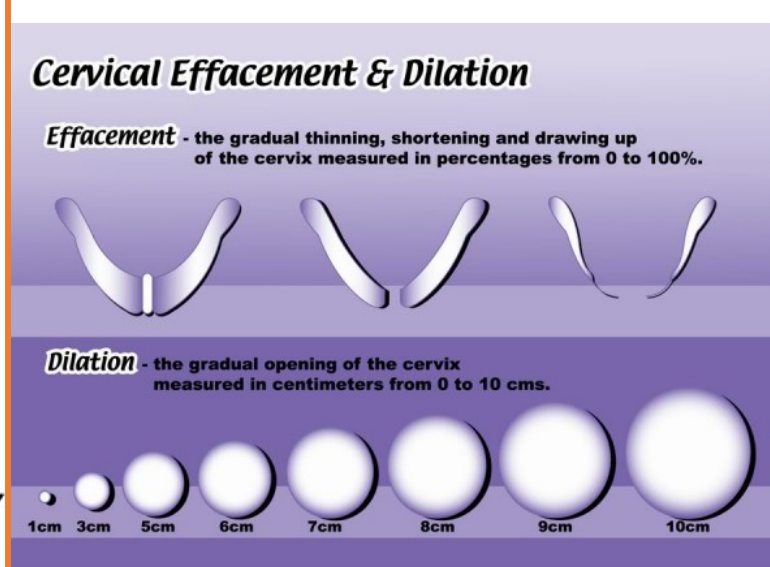
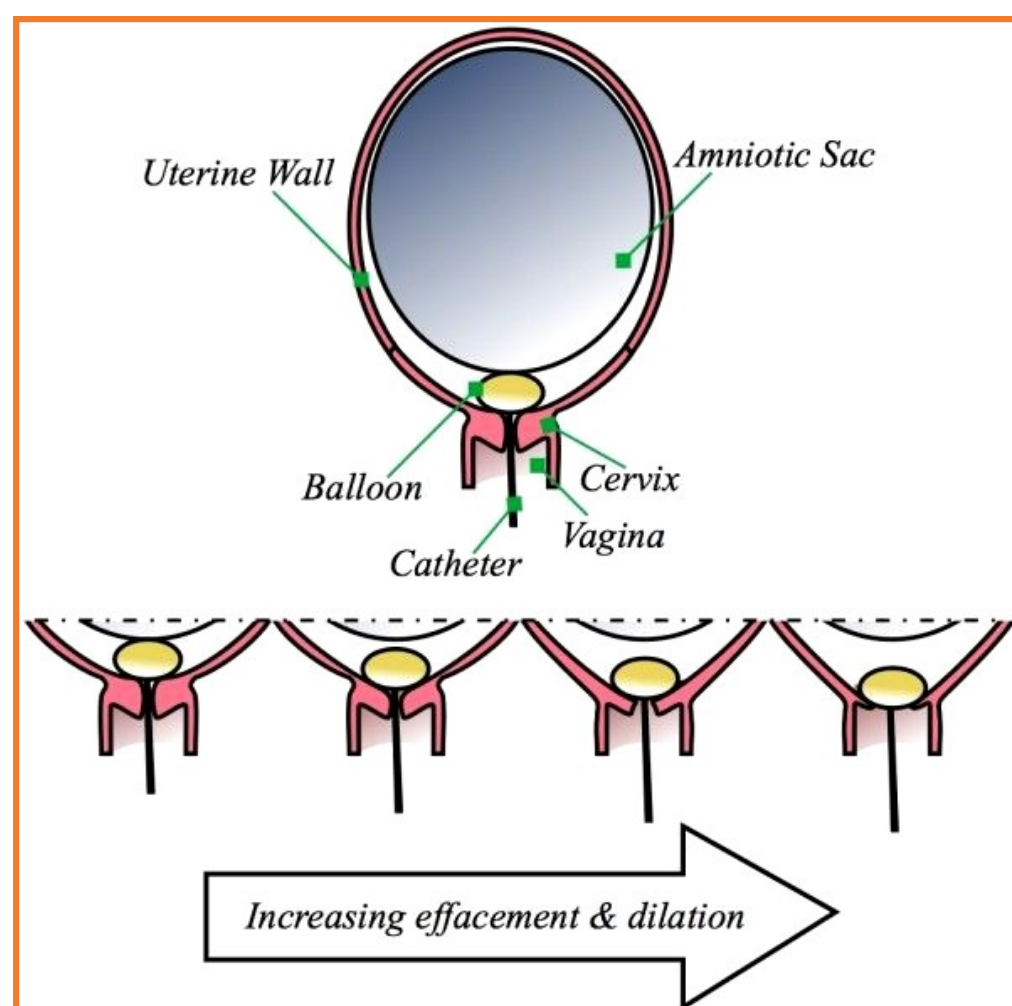
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## ABSTRACT:

Induction of labour is common procedure in obstetrics occurring up to 30% of pregnancies. The procedure becomes necessary for conditions that pose a risk to mother or child. There are various pharmacological and mechanical methods for induction of labour. The evolution of these methods has improved the outcomes of labour induction and made it significantly safer than it was a hundred years ago. Mechanical method has comparable outcomes to the pharmacological method and shown to be more effective in patient with previous caesarean section as less systemic side effects observed by using this method. Trans-cervical balloon catheters provide an alternative to prostaglandins (pharmacological) for labour induction and have been used for almost 50 years. Balloon catheters allow gentle ripening of the cervix without causing uterine overstimulation. Various technique observed for the placement of Foley catheter such as different volume for balloon inflation, tension or without tension applied to the catheter, and even traction with certain weight. This project concentrates on the new design kit for mechanical induction of labour by incorporating different techniques used during and after placement of catheter, and also simplifies the insertion technique making the procedure tolerable for both the doctor and patient. This project provides possible alternative for IOL in women who want a 'home induction'. The kit has 3 major components (balloon tubing, disc and tubing locking mechanism) by taking into account the re-usability, safety features, ease of operations and lowest cost possible. This will be the most demanding system for mechanical induction labour since it will not intervene with the user movement and activities.

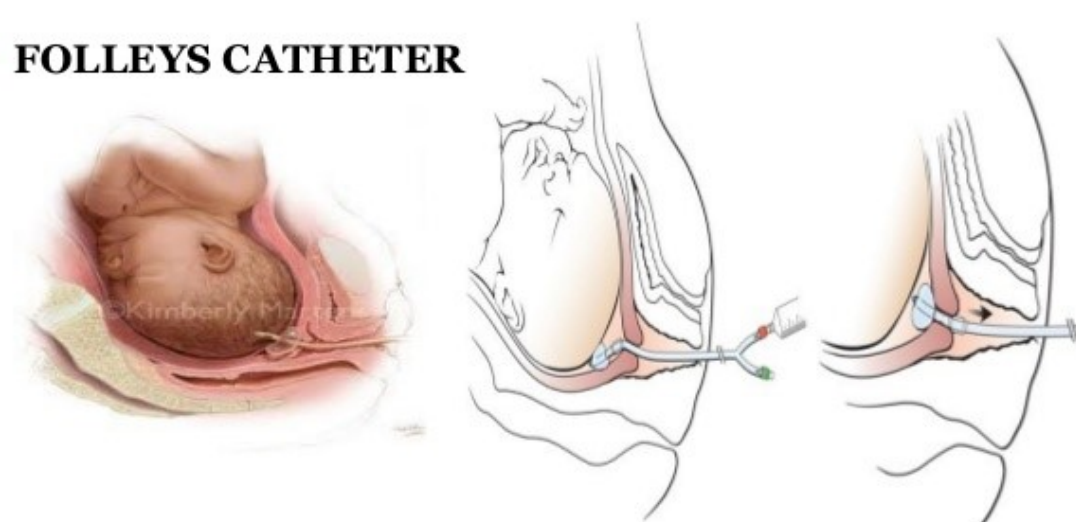
## THE IDEA



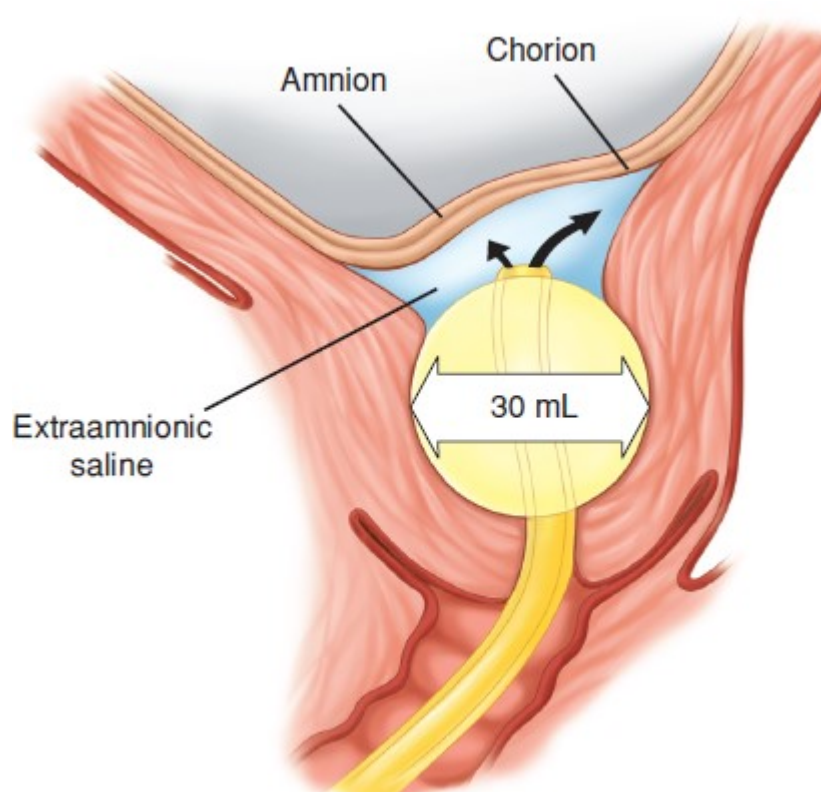
## EXISTING METHOD & TOOLS

### MECHANICAL METHODS

#### • FOLLEYS CATHETER



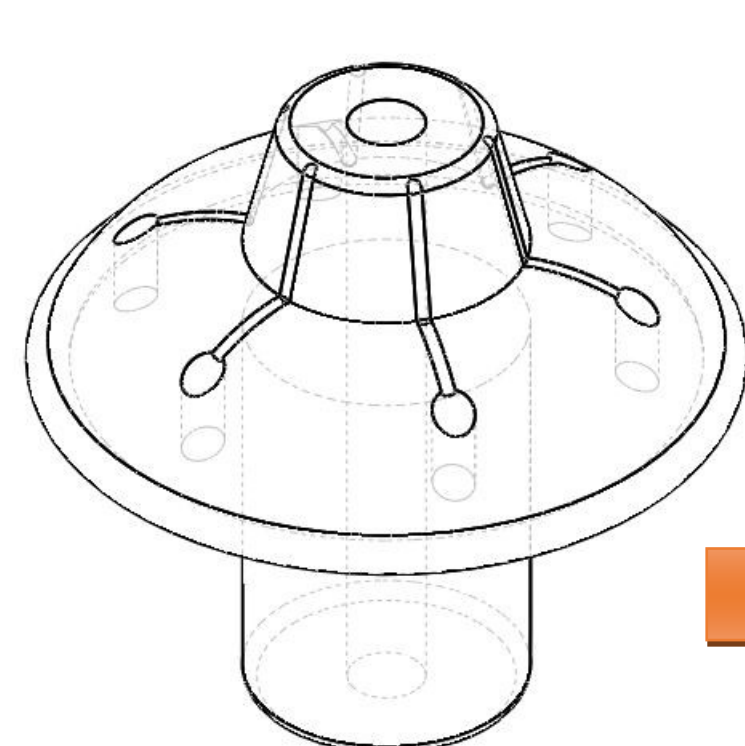
#### Mechanical -- Double balloon



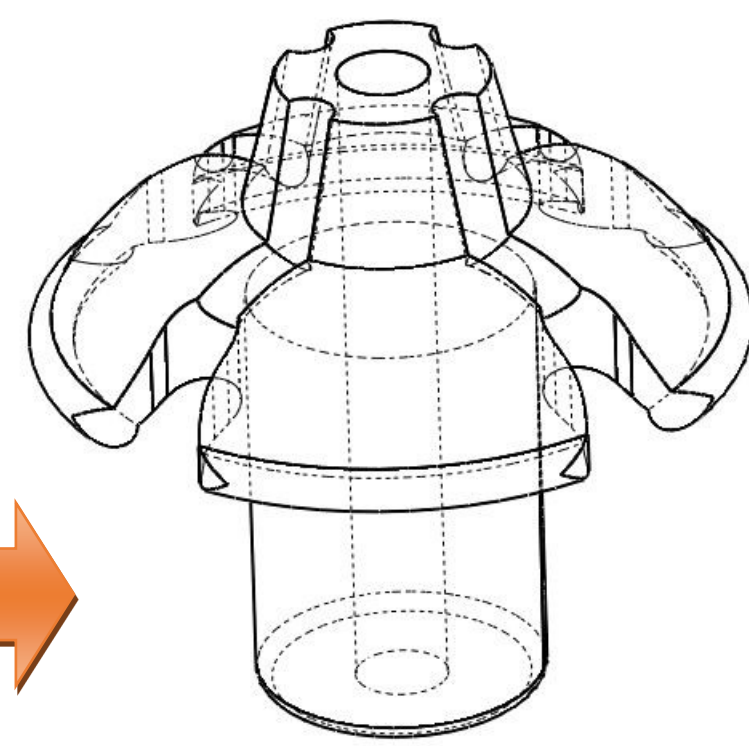
## PROBLEMS

- \* HARD FOR THE FOLEYS CATHETER TO MAINTAIN THE LOADING WEIGHT APPLIED.
- \* THE FOLEYS CATHETER INSERTION METHOD CAUSING DISCOMFORT TO THE PATIENT.
- \* 2 BALLOON METHOD—ONE OF THE BALLOON MIGHT POP; THE DISTANCE BETWEEN THE 2 BALLOON CAN NOT BE CONTROLLED & TOTAL BLOCK OF THE CERVIX—DANGER TO MOTHER & BABY (MONITORING OF LEAKAGE FLUIDS/BLOOD).

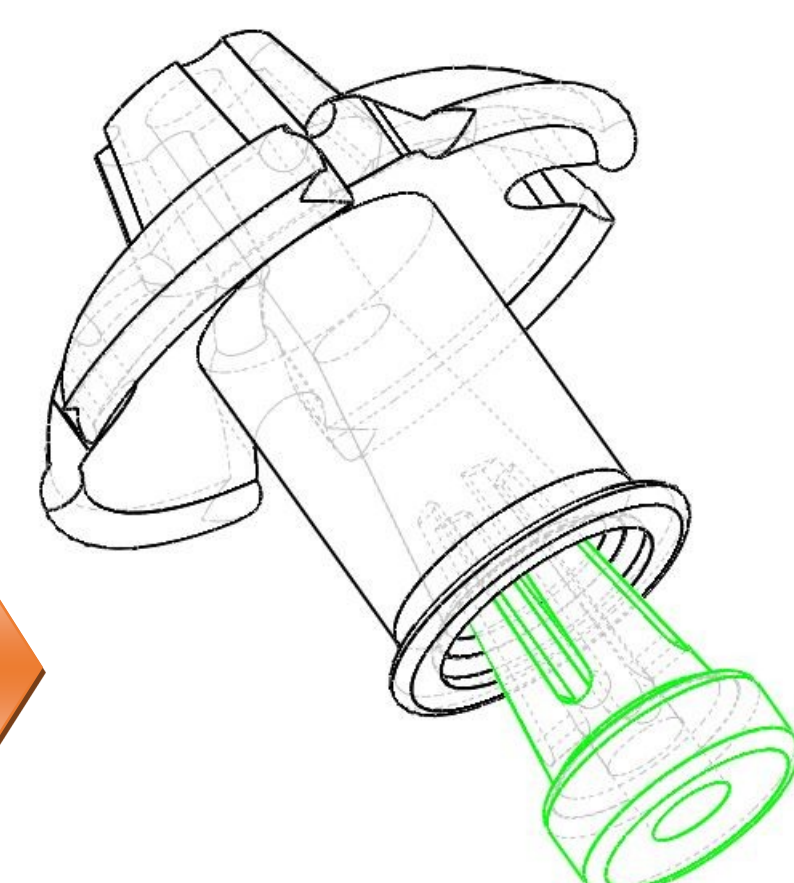
## THE FINAL PRODUCT



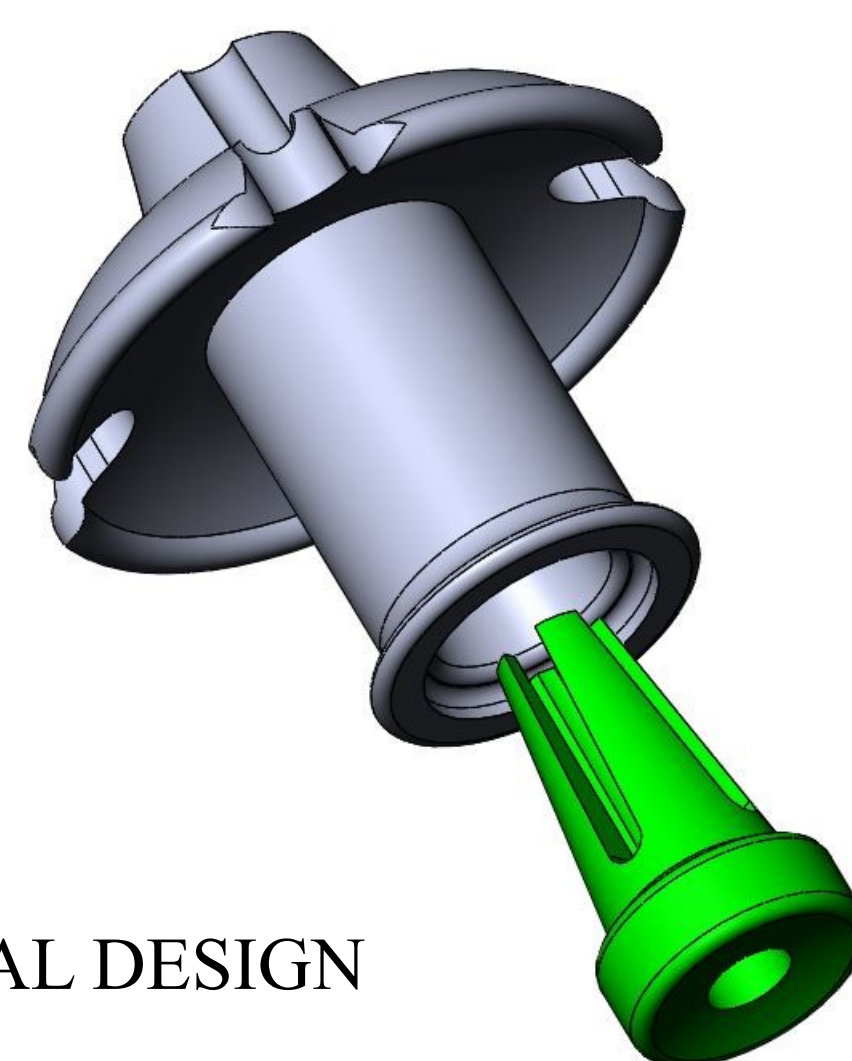
PROTOTYPE 1



PROTOTYPE 2



FINAL DESIGN



## PROBLEMS SOLVED

- \* HARD FOR THE FOLEYS CATHETER MAINTAIN THE LOADING WEIGHT APPLIED—**SOLVED**
- \* THE FOLEYS CATHETER METHOD CAUSING DISCOMFORT TO THE PATIENT—**SOLVED**
- \* 2 BALLOON METHOD—ONE OF THE BALLOON MIGHT POP; THE DISTANCE BETWEEN THE 2 BALLOON CAN NOT BE CONTROLLED & TOTAL BLOCK OF THE CERVIX—DANGER TO MOTHER & BABY (MONITORING OF LEAKAGE FLUIDS) - **SOLVED**

## THE BENEFIT OF THE "CLOVER SET"

- \* LESS SYSTEMIC SIDE EFFECTS COMPARED TO PHARMACOLOGICAL METHOD.
- \* HOME INDUCTION—NO NEED FOR HOSPITAL STAY.
- \* SIMPLE KIT—LOWERING THE COST OF CHILD BIRTH.
- \* 100% MALAYSIA MADE—FIRST KIT EVER EXIST.

### ACKNOWLEDGEMENTS

THE INNOVATORS WOULD LIKE TO THANK THE INSTITUTE OF SCIENCE FOR THE CHANCE GIVEN TO PARTICIPATE IN THE IIDEX2019. OUR THANK ALSO GOES TO RIBU UITM FOR THE ASSISTANCE IN APPLYING THE COPYRIGHT FOR THIS PROJECT. ALSO OUR THANK YOU TO THE DEPARTMENT OF OBSTETRICS & GYNAECOLOGY, KULIYAH OF MEDICINE, INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA, INDERA MAHKOTA CAMPUS FOR SUPPORTING IIDEX 2019 THIS TIME.



RESEARCH  
INNOVATION &  
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2019



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Community and Economy (CICE)

# iiidex 2019

Invention, Innovation &  
Design Exposition

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ZALINA BINTI NUSEE'  
HAMIZAH BINTI ISMAIL  
AFIFUDDIN ROMLI**

*"Commercialisation of Innovations for  
Community and Economy (CICE)"*

has/have been awarded

**GOLD AWARD**

for the Invention/Innovation/Design of

**THE NEW DESIGN OF THE MECHANICAL INDUCTION  
LABOUR KIT**

at

**INVENTION, INNOVATION & DESIGN EXPOSITION 2019**

**10 - 15 SEPTEMBER 2019**

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