

END OF YEAR DISSERTATION PAPER
FOR THE ENGINEERING DEGREE
OF INSTITUT SUPERIEUR DE TECHNOLOGIE D'ANTANANARIVO
IN THE COURSE
INDUSTRIAL GENIE IN MAINTENANCE AND PRODUCTION



SETTING UP A COMPUTERIZED ALARM SYSTEM IN ASECNA'S SENSITIVE PREMISES

MISE EN PLACE D'UN SYSTEME D'ALARME INFORMATISE DANS LES LOCAUX SENSIBLES DE L'ASECNA

Présented by : Andriantsiriniaina RANIVOARISON

PRESENTATION PLAN

INTRODUCTION

PART I : INVERTERS/UPS

Onduleurs

PART II : THE UPS ROOM

Salle d'onduleurs

PART III : SYSTEM DESIGN

Conception du système

CONCLUSION

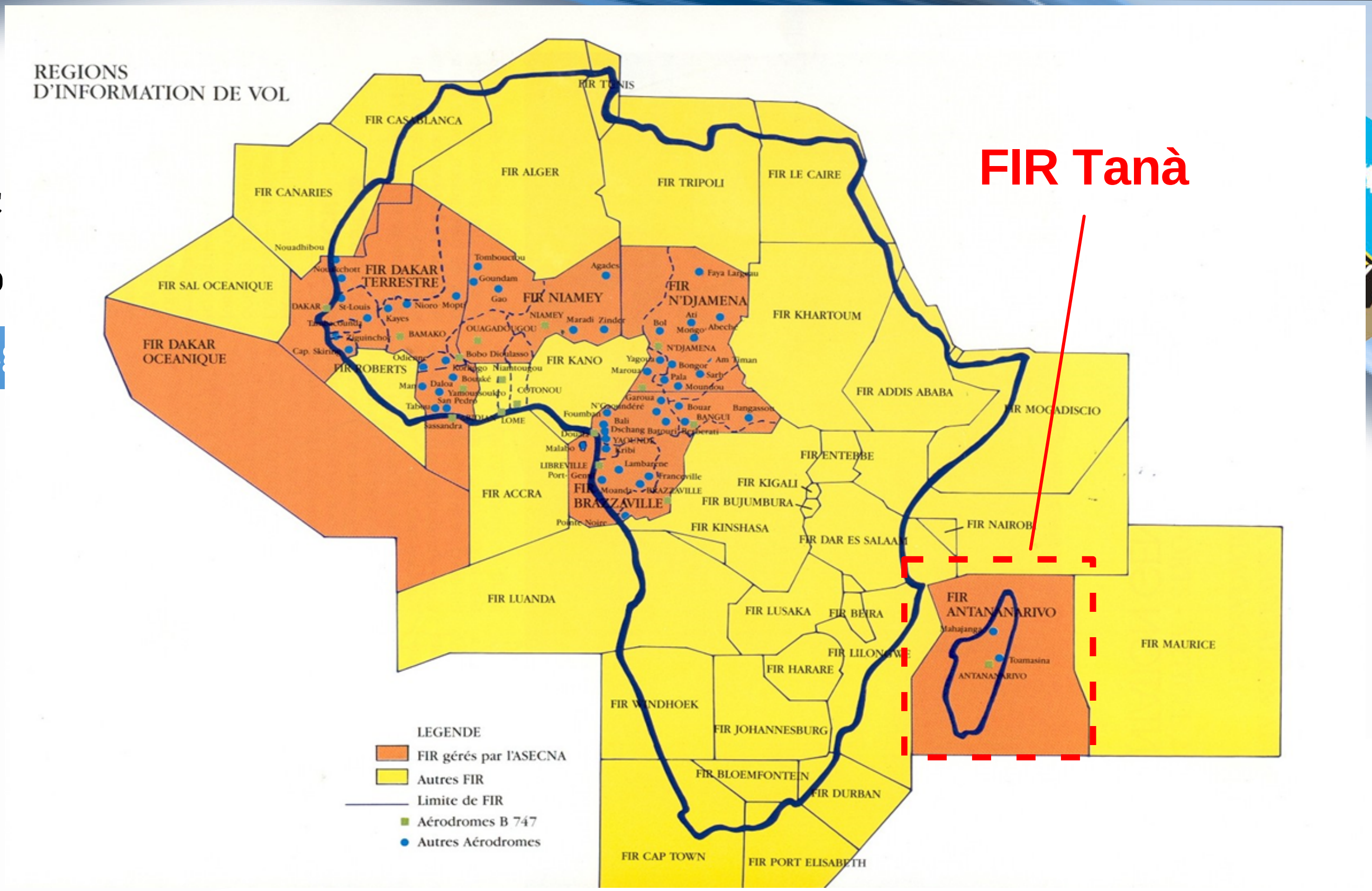


INTRODUCTION

Agenc

Object: p

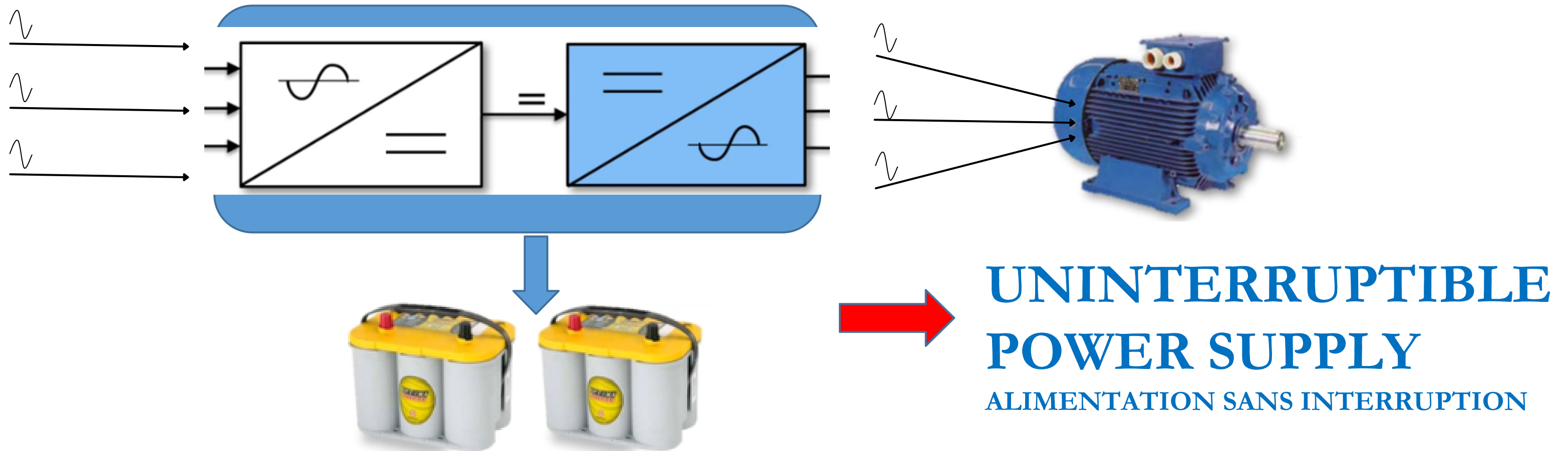
- Navig



PART I: INVERTERS/UPS (ONDULEURS)

What is an inverter ?

Power electronics device for obtaining a stable alternating current, frequency and / or adjustable effective value from a direct current (**converter DC/AC**)



=> For AC machines or for emergency power supplies

PART II: THE UPS ROOM (SALLE

DESIGN (EVIDS)

CABINETS

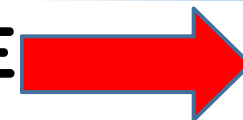
AIR
CONDITIONERS

TEMPERATURE TAKING

CURRENT FLOW



ATOMIC RESISTANCE



JOULE
EFFECT



EXOTHERMIC : heat release



BATTERY
PART

ORDER
PART

PARTIE II: THE UPS ROOM

CABINETS

AIR
CONDITIONERS

TEMPERATURE TAKING

- To keep constant the room's temperature
- 5 AIR CONDITIONERS FOR ONE ROOM

AIR CONDITIONER TURN OFF



MALFUNCTION OF UPS



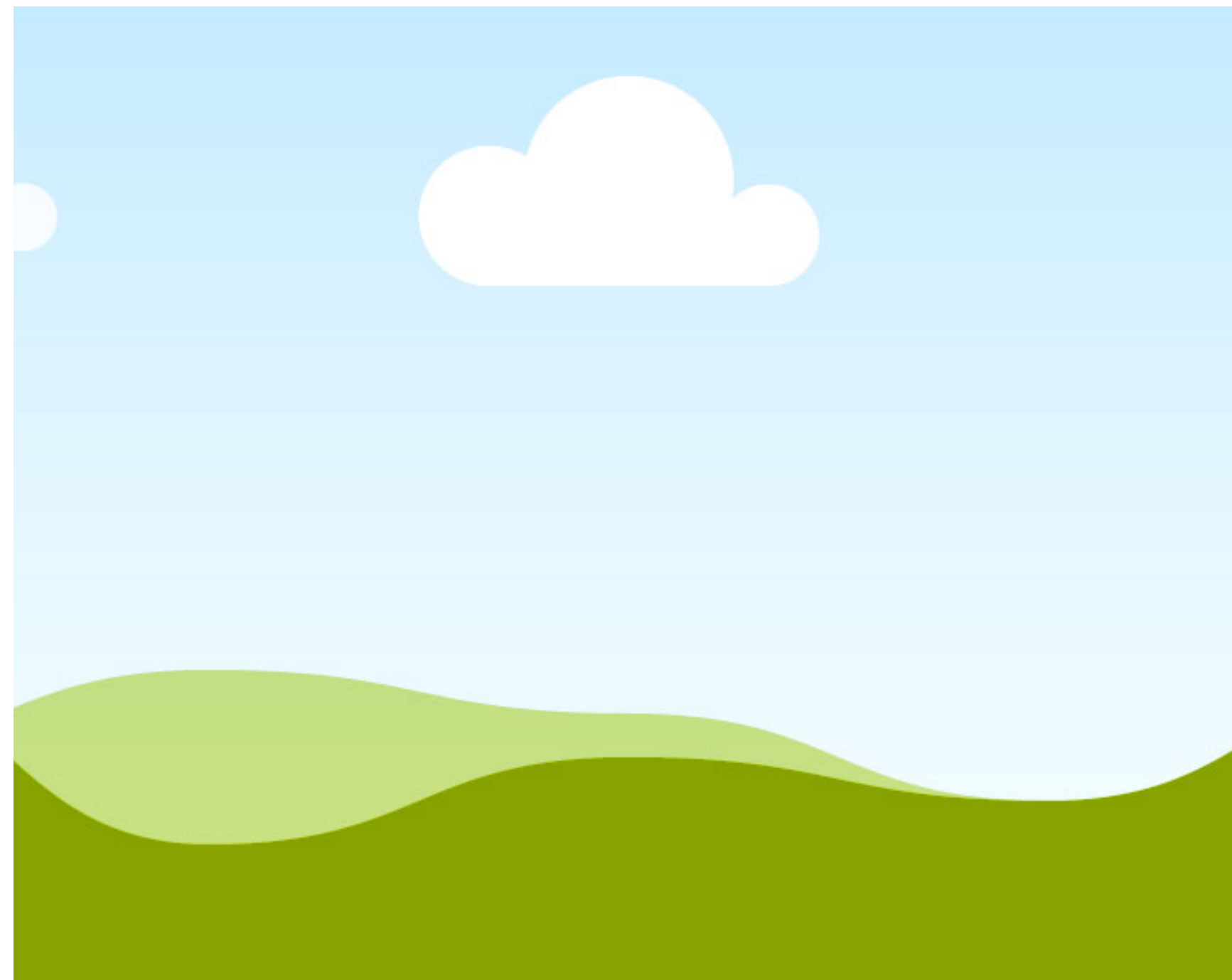
PARTIE II: THE UPS ROOM

CABINETS

AIR
CONDITIONERS

TEMPERATURE
TAKING

→ TO FOLLOW THE TEMPERATURE EVOLUTION, THERMOMETERS ARE PLACED AT THE DOOR OF CABINETS



PARTIE II: THE UPS ROOM

CABINETS

AIR
CONDITIONERS

TEMPERATURE
TAKING

PROBLEM &
SOLUTION

• PROBLE

M



TEMPERATURE ELEVATION IN THE UPS ROOM



MALFUNCTION OF UPS

• SOLUTIO

N



ALARM SYSTEM DEVELOPMENT IF TEMPERATURE RISES

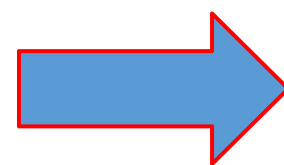
• EXPECTED

RESULTS



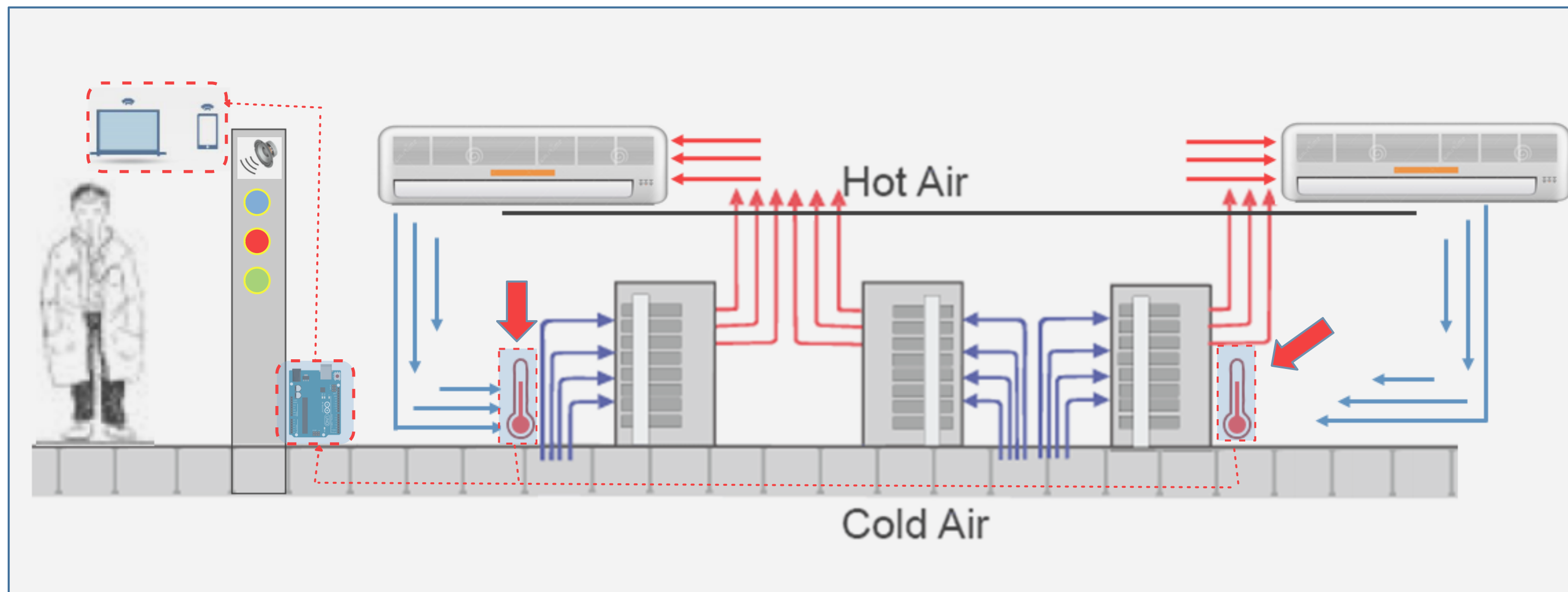
MONITORING TEMPERATURE EVOLUTION AND ALERT TECHNICIANS IF ANOMALY

PART III: SYSTEM DESIGN



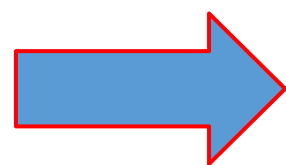
« SETTING UP A COMPUTERIZED ALARM SYSTEM IN ASECNA'S SENSITIVE PREMISES »

III.1 OPERATION OF THE ALARM SYSTEM



$T(\text{normal}) [^{\circ}\text{C}] = [15-25]$
 $T(\text{acceptable}) [^{\circ}\text{C}] = [25-29]$
 $T(\text{Limit}) [^{\circ}\text{C}] = 30$

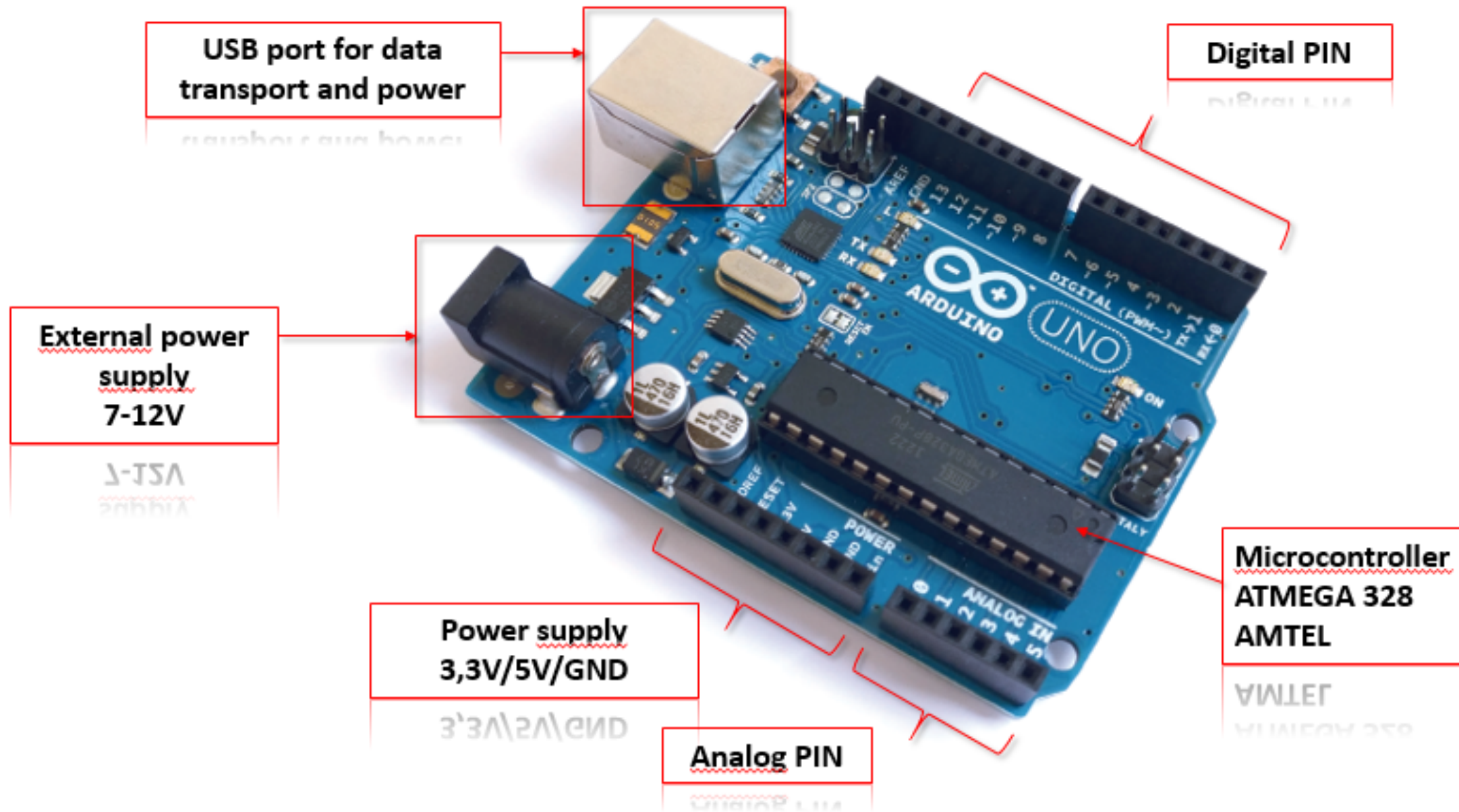
PART III: SYSTEM DESIGN



« SETTING UP A COMPUTERIZED ALARM SYSTEM IN ASECNA'S SENSITIVE PREMISES »

III.1 OPERATION OF THE ALARM SYSTEM

- MICROPROCESSOR: ARDUINO UNO



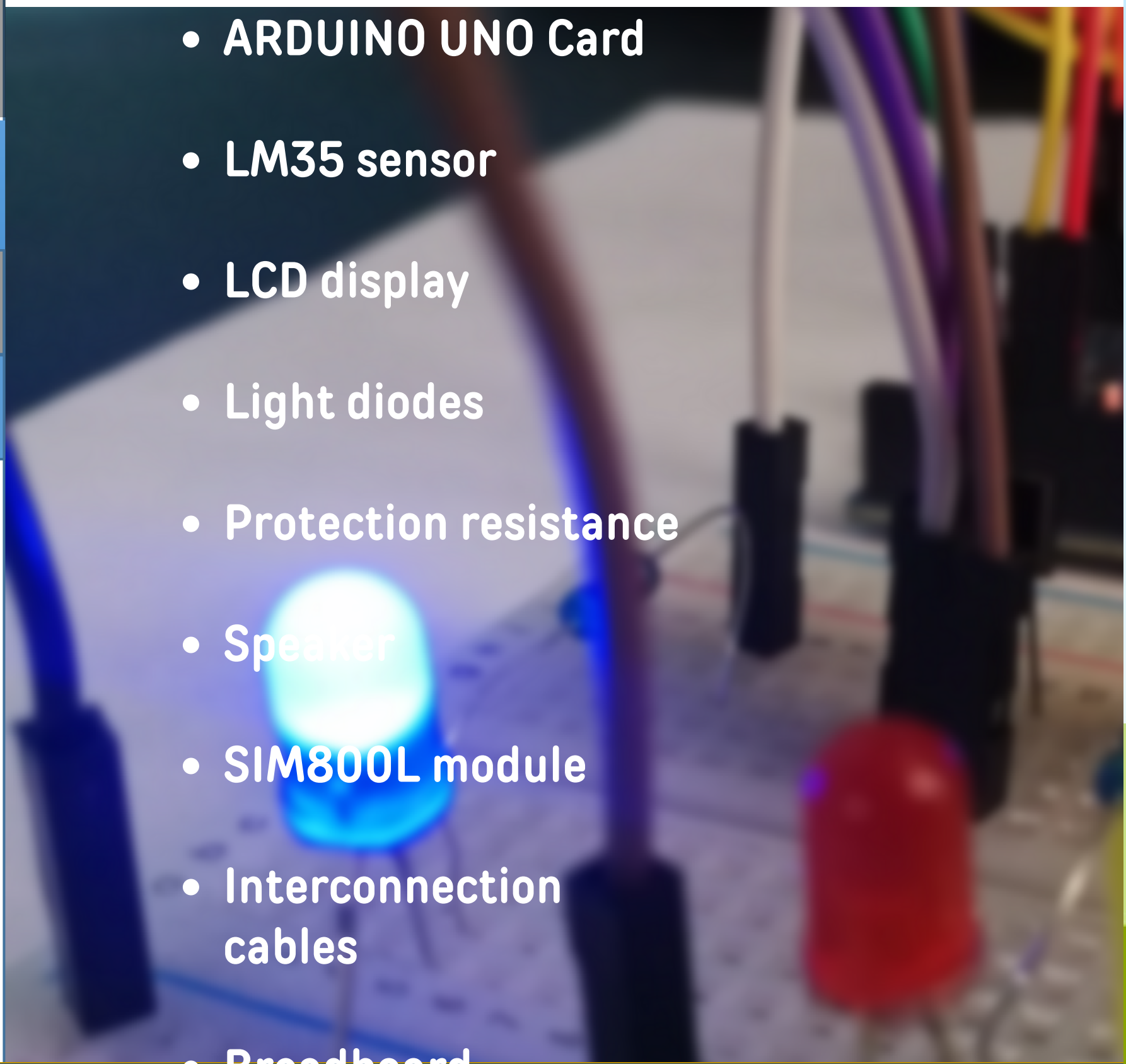
- SENSOR: LM35



PART III: SYSTEM DESIGN

III.2 SYSTEM MOUNTING

- ARDUINO UNO Card
- LM35 sensor
- LCD display
- Light diodes
- Protection resistance
- Speaker
- SIM800L module
- Interconnection cables
- Breadboard



CONCLUSION

• ABSTRACT

T

TEMPERATURE



Electric
Tension



Computer data



Electronic
components



- FOLLOW-UP OF TEMPERATURE
- EVOLUTION
- ALERT TECHNICIANS IF ANOMALY

• ADVANTAGE

S



- GAIN OF TIME FOR MONITORING AND RAPID PREVENTIVE INTERVENTION

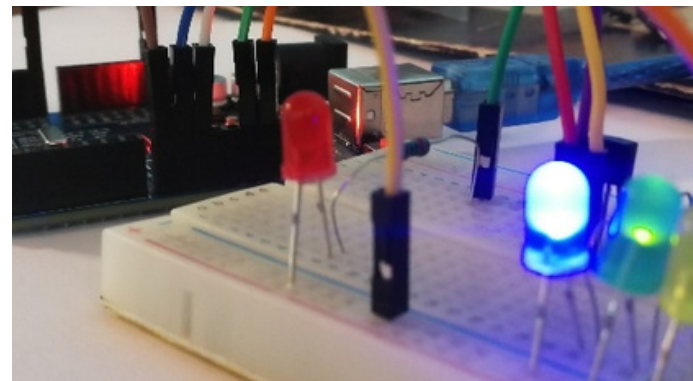
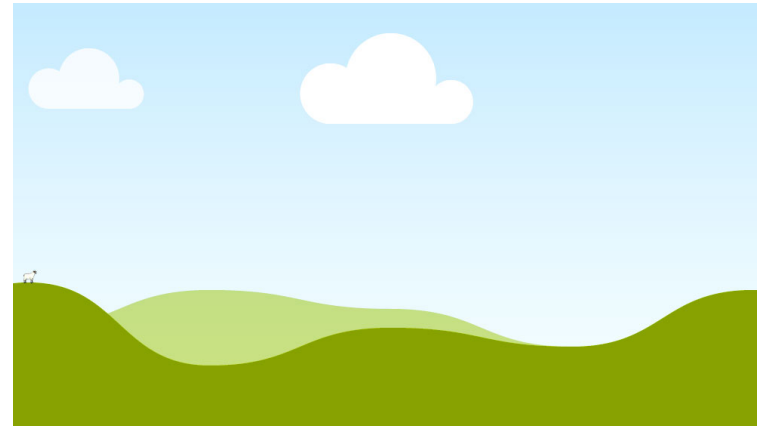
• PERSPECTIVES of EVOLUTION



- AUTOMATION OF STARTING OF THE EMERGENCY AIR CONDITIONER BY THIS SYSTEM
- INTERNET ALERT SYSTEM (EMAIL, CHAT,...)
- INSTALLATION OF OTHER AIR CONDITIONERS



**THANK YOU FOR
YOUR ATTENTION!!!**



END OF YEAR DISSERTATION PAPER
FOR THE ENGINEERING DEGREE
OF INSTITUT SUPERIEUR DE TECHNOLOGIE D'ANTANANARIVO
IN THE COURSE
INDUSTRIAL GENIE IN MAINTENANCE AND PRODUCTION



SETTING UP A COMPUTERIZED ALARM SYSTEM IN ASECNA'S SENSITIVE PREMISES

MISE EN PLACE D'UN SYSTEME D'ALARME INFORMATISE DANS LES LOCAUX SENSIBLES DE L'ASECNA

Présented by : **Andriantsiriniaina RANIVOARISON**