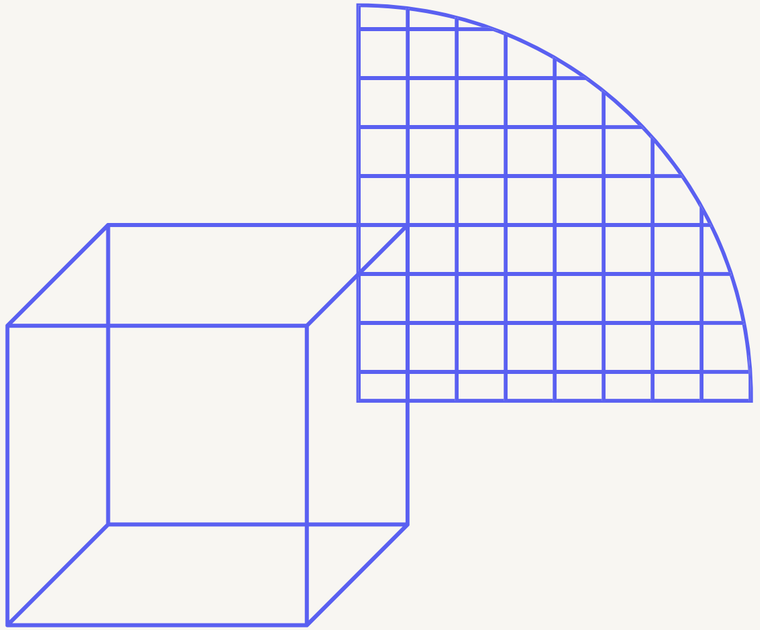
PHASE 2 PRESENTATION

# PRESSURE ULCER PREDICTION AND PREVENTION

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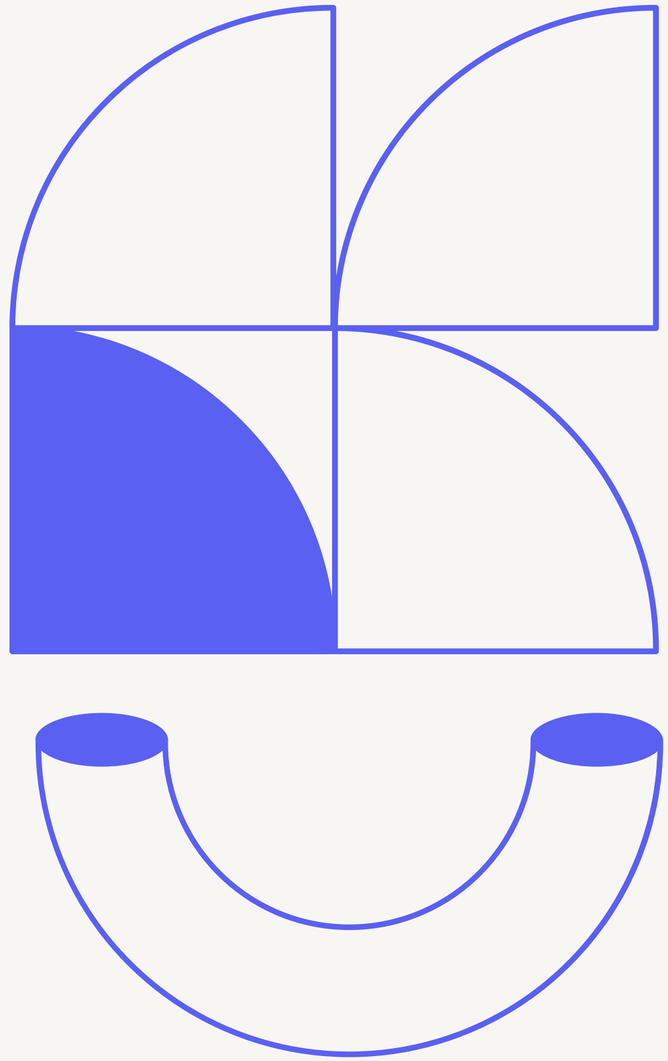
2021-22

# CONTENTS





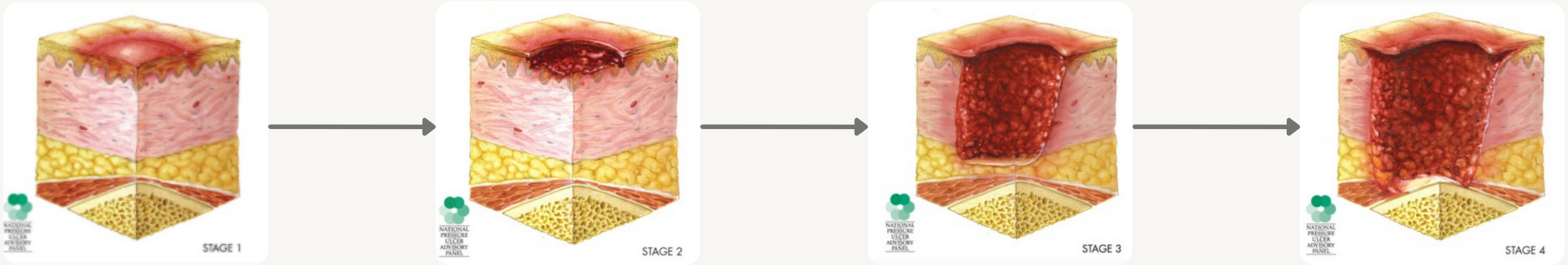
# ABSTRACT

## what are pressure sores?

- **Pressure ulcers** (PU), decubitus ulcers, bedsores, or pressure sores => **localized areas of tissue damage**
  Cause => **excessive pressure, shearing forces, limited activity or mobility**, etc.
- Range from superficial tissue damage to severe tissue destruction
- Every year, **more than 2.5 million people suffer from PUs, including 160,000 in nursing homes** in the US alone

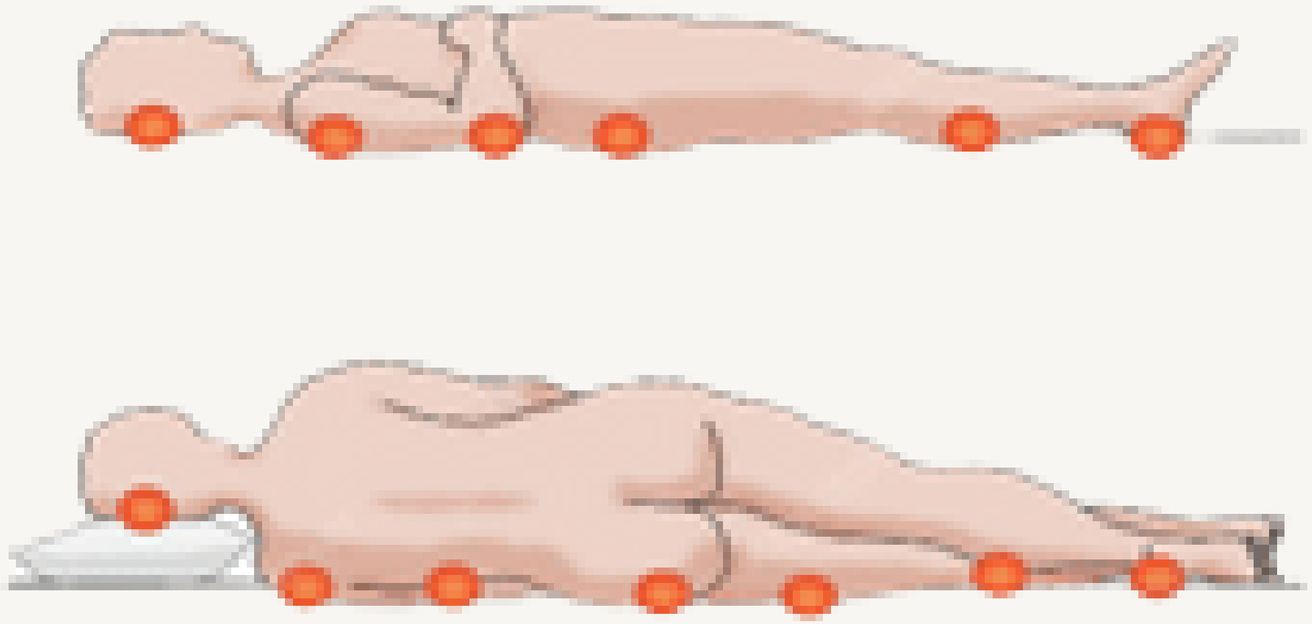
# ABSTRACT

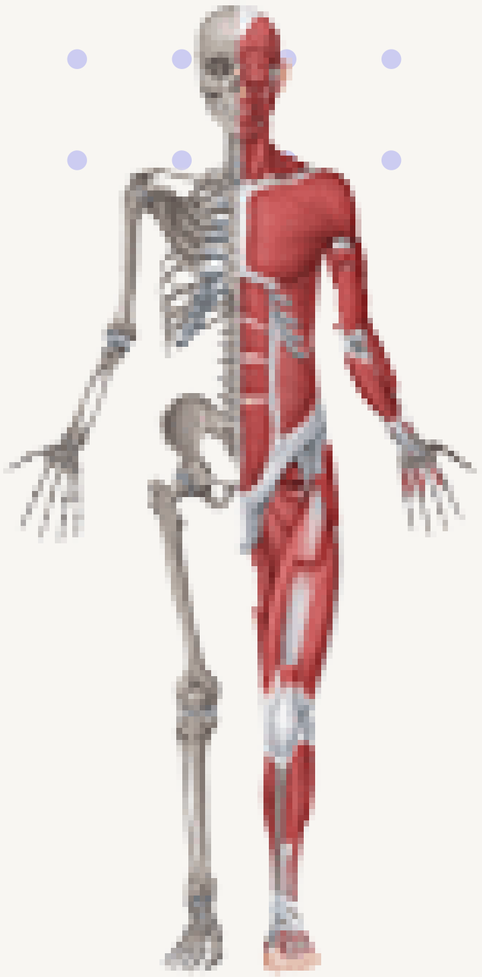
## the 4 stages of pressure sores



# ABSTRACT

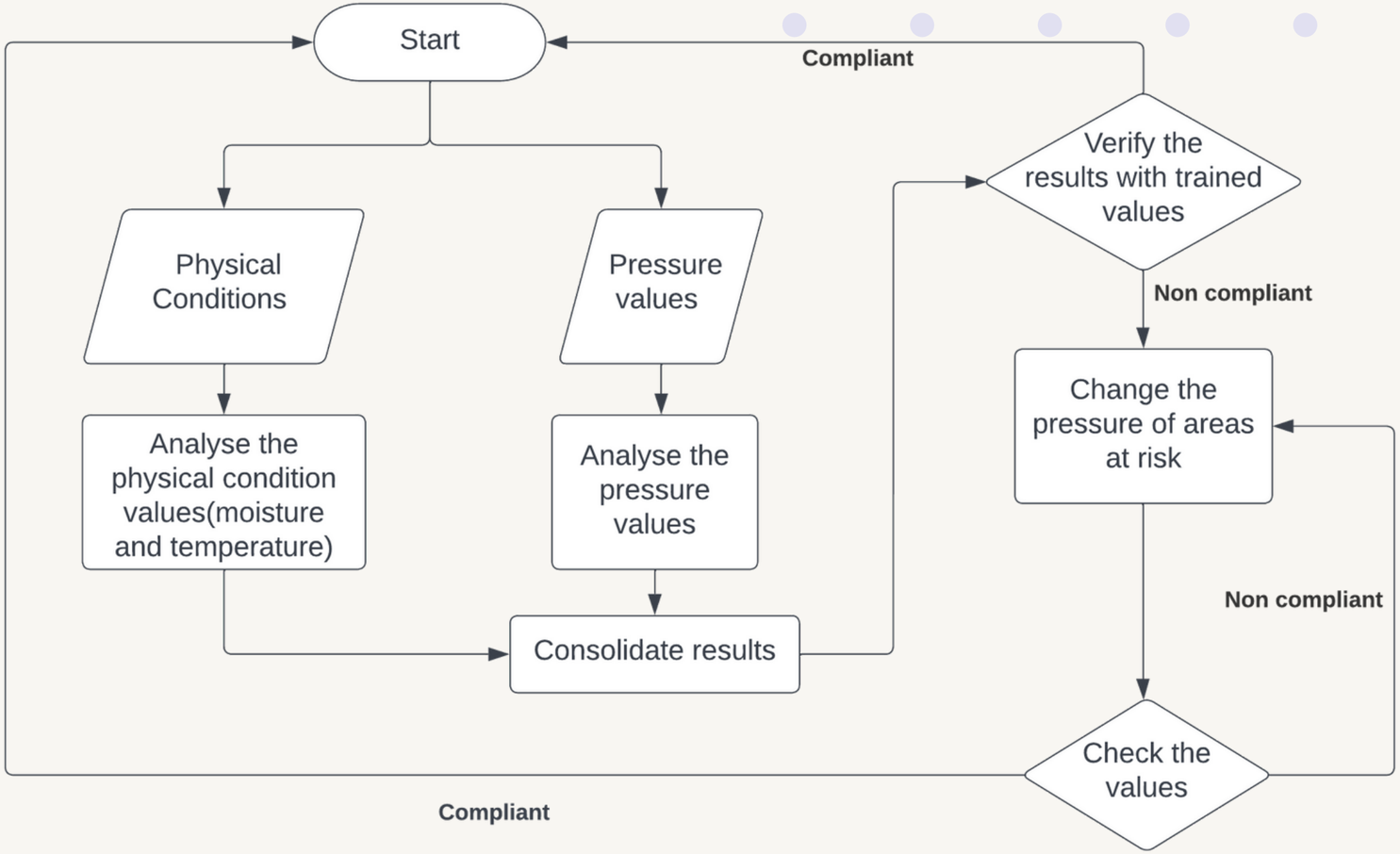
## the at-risk points of the body





# SYSTEM ANALYSIS - OVERALL PROCESS

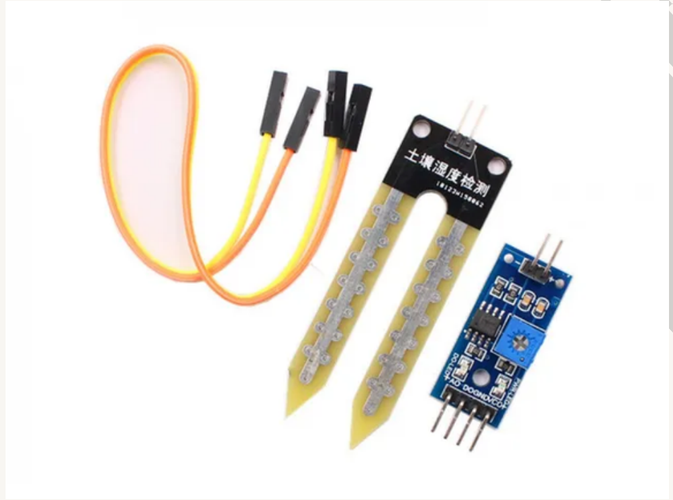
## Process Diagram



# SYSTEM ANALYSIS - REQUIREMENTS

## required to run the system

**SEN-13322 - moisture sensor,** to measure the skin moisture levels



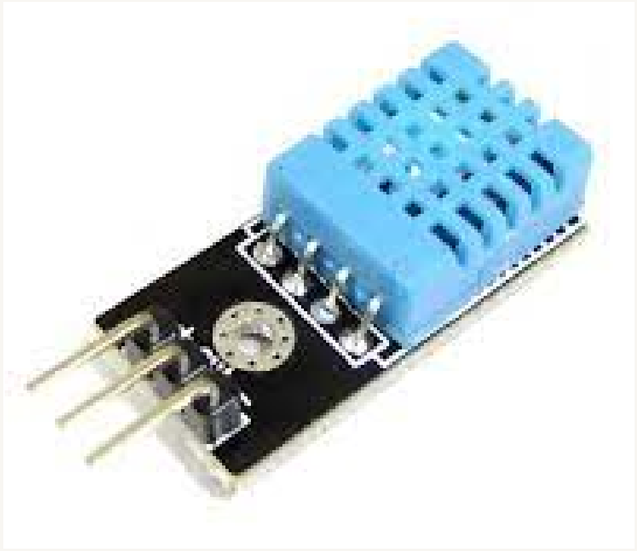

**NodeMCU ESP8266 - microcontroller,** is the microcontroller component to transmit data to the server and control the sensors via instruction

# SYSTEM ANALYSIS - REQUIREMENTS

## required to run the system

**NW Air pump 400KPa 370 - air pump,** to pump air into the air pockets

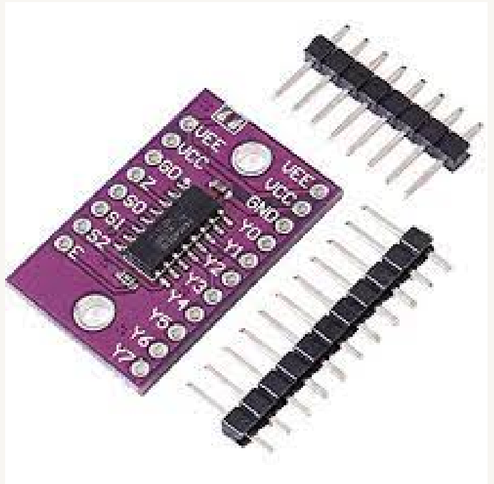

**DHT 11 Temperature and Moisture Sensor**, to measure ambient temperature and moisture



# SYSTEM ANALYSIS - REQUIREMENTS

## required to run the system

**CJMCU-4051 74HC4051 8 Channel Analog Multiplexer/Demultiplexer Breakout Board for Arduino,** to multiplex and demultiplex signal(s)




**24V DC Mini Solenoid Valve - valve,** to manipulate air pressure in pockets

# SYSTEM ANALYSIS - REQUIREMENTS

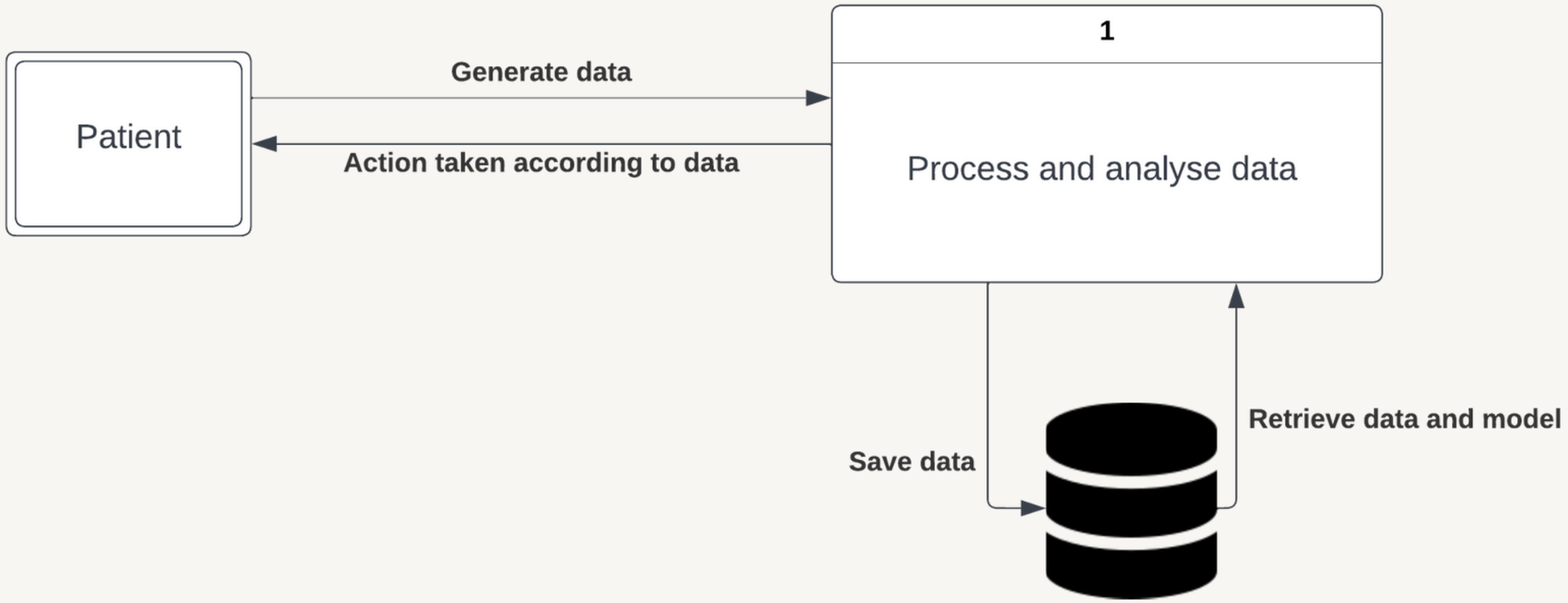
## required to run the system

Miscellaneous - Pipes and Blower

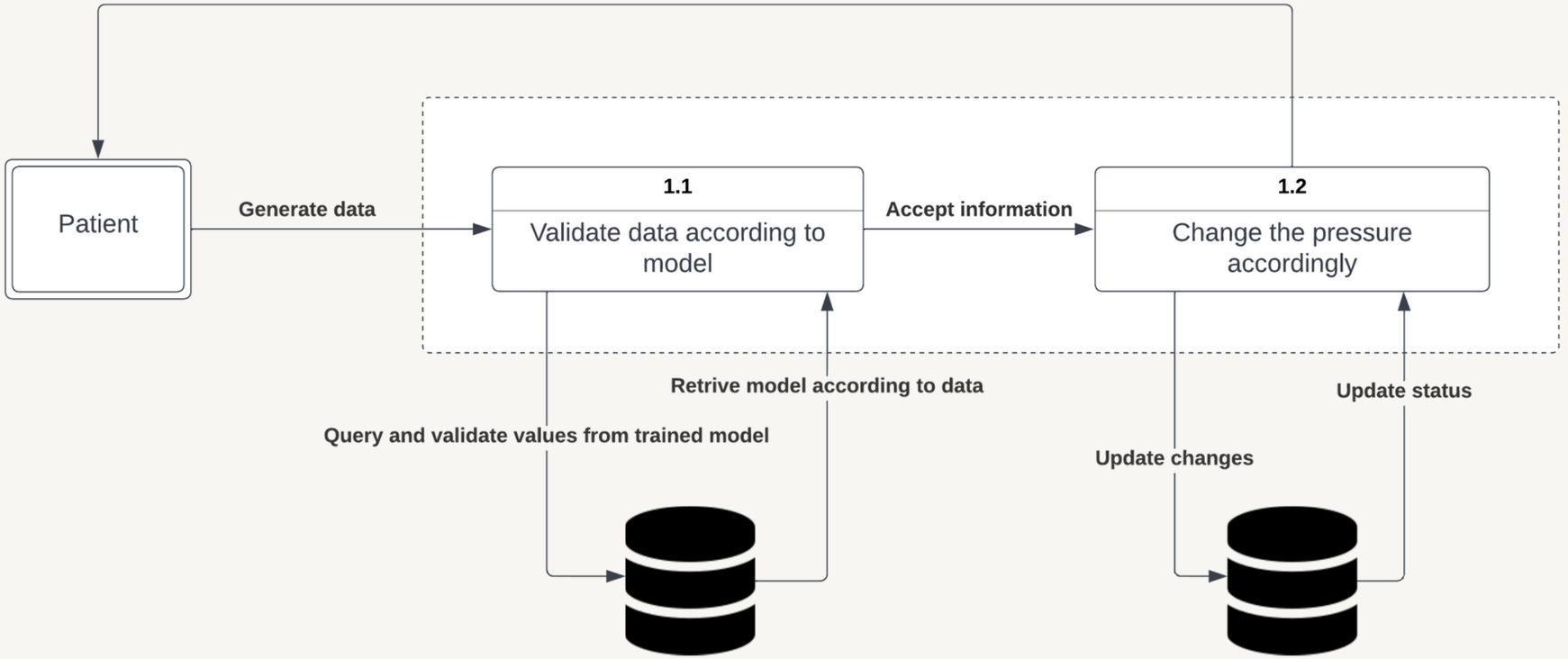
Bed Fabrication Materials

Wires

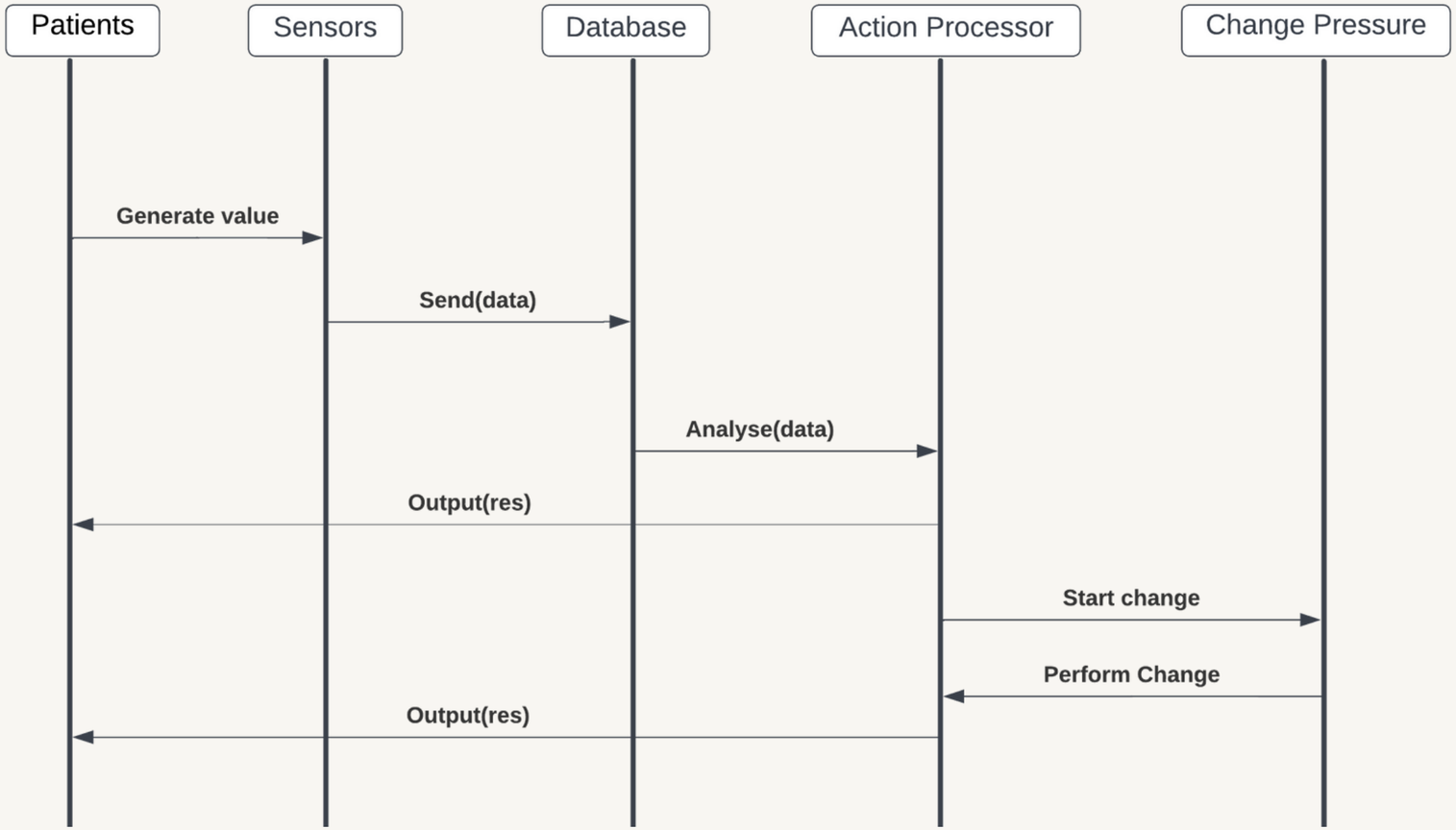
# SYSTEM DESIGN - LEVEL 0 DATAFLOW DIAGRAM



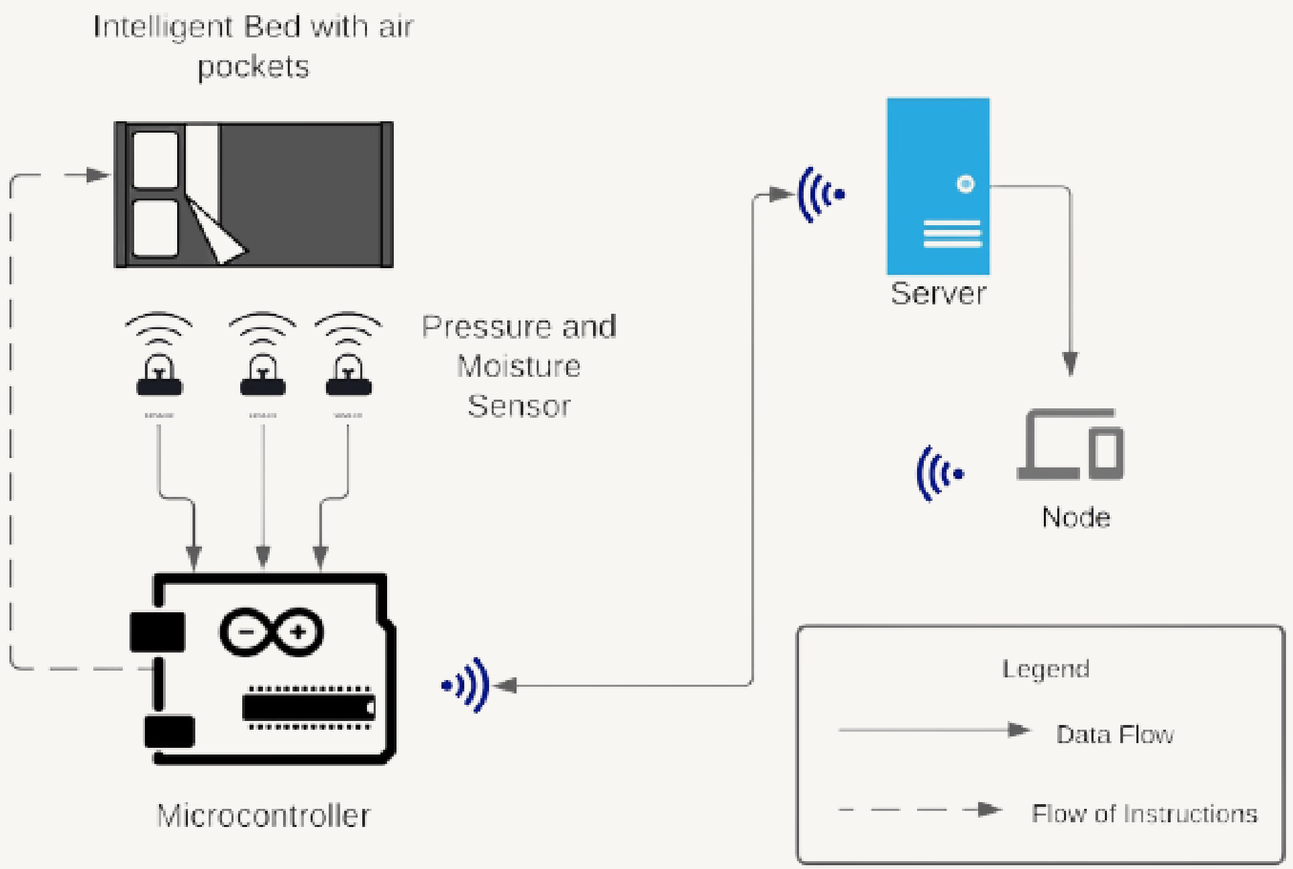
# SYSTEM DESIGN - LEVEL 1 DATAFLOW DIAGRAM



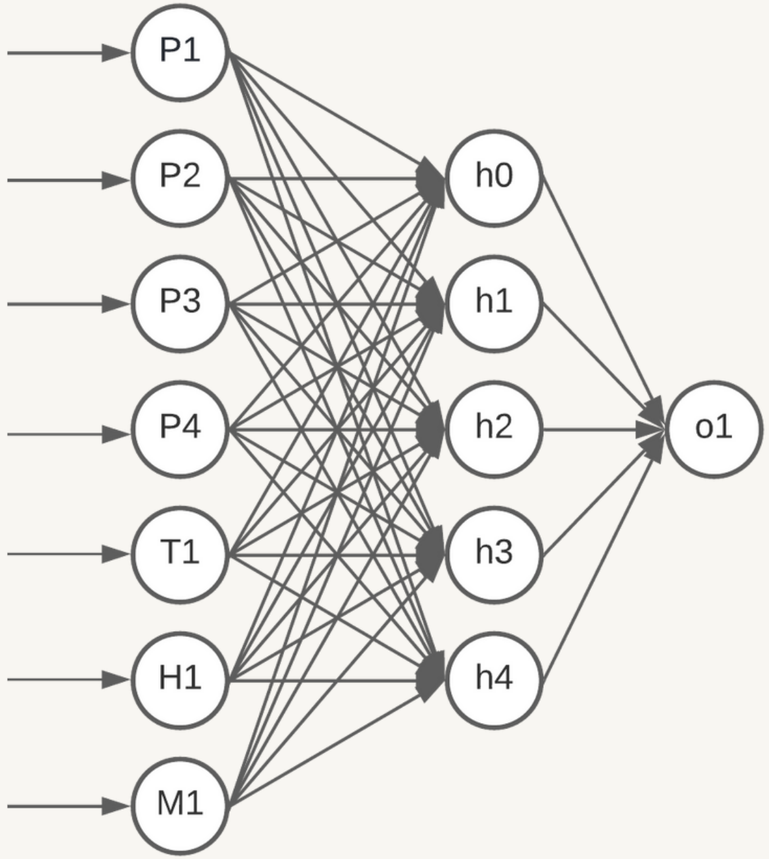
# SYSTEM DESIGN - SEQUENCE DIAGRAM



# SYSTEM DESIGN - CIRCUIT DIAGRAM



# SYSTEM DESIGN - NEURAL NETWORK ARCHITECTURE



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# Thank you!