

SENSOR INTEGRATED SYSTEM BASED REAL TIME AND ONLINE MONITORING FOR ORGAN ON CHIP PLATFORMS SUPERVISOR: DR. FIDA HUSSAIN MEMON

INTRODUCTION:

- ANIMAL TESTING FOR DRUG RESEARCH IS BEING BANNED, SO RESEARCHERS NEED A NEW WAY TO TEST DRUG EFFECTS.
- ORGAN-ON-CHIP TECHNOLOGY HELPS MIMIC HUMAN BODY FUNCTIONS IN A SMALL LAB SETUP.
- WE ARE BUILDING A SYSTEM TO MONITOR BIOLOGICAL RESPONSES IN REAL-TIME.
- GLUCOSE MONITORING IS USED AS A TEST CASE TO CHECK IF THE PLATFORM WORKS.
- THE SYSTEM INCLUDES A SENSOR, CUSTOM PCB, NI MYRIO, CLOUD STORAGE, AND A MOBILE APP FOR REMOTE ACCESS.

OBJECTIVES:

- DEVELOP A REAL-TIME MONITORING SYSTEM FOR ORGAN-ON-CHIP RESEARCH.
- REPLACE ANIMAL TESTING WITH A LAB-BASED DRUG TESTING PLATFORM.
- USE A GLUCOSE SENSOR AS A TEST CASE TO CHECK SYSTEM PERFORMANCE.
- DESIGN AND INTEGRATE A CUSTOM PCB WITH NI MYRIO FOR DATA PROCESSING.
- ENABLE REMOTE ACCESS THROUGH CLOUD STORAGE AND A MOBILE APP.
- ENSURE SYSTEM ACCURACY BY TESTING GLUCOSE CONCENTRATION LEVELS.

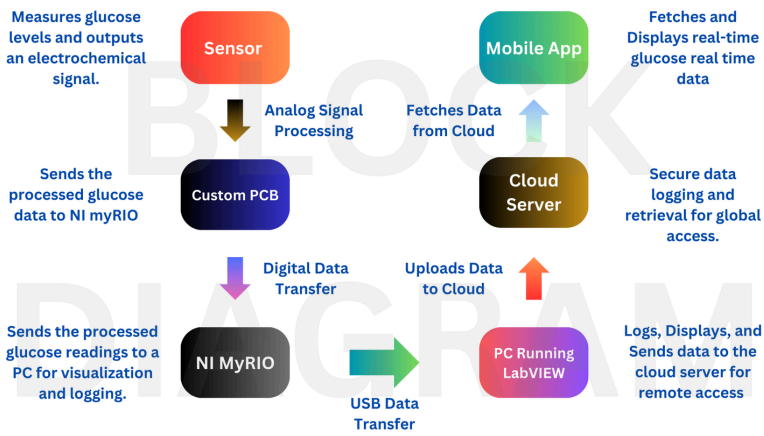
CONCLUSION:

- BUILT A REAL-TIME BIOLOGICAL MONITORING SYSTEM FOR DRUG TESTING RESEARCH.
- SUCCESSFULLY TRACKED GLUCOSE CHANGES, PROVING THE SYSTEM WORKS.
- INTEGRATED SENSORS, PCB, NI MYRIO, LABVIEW, CLOUD, AND A MOBILE APP.

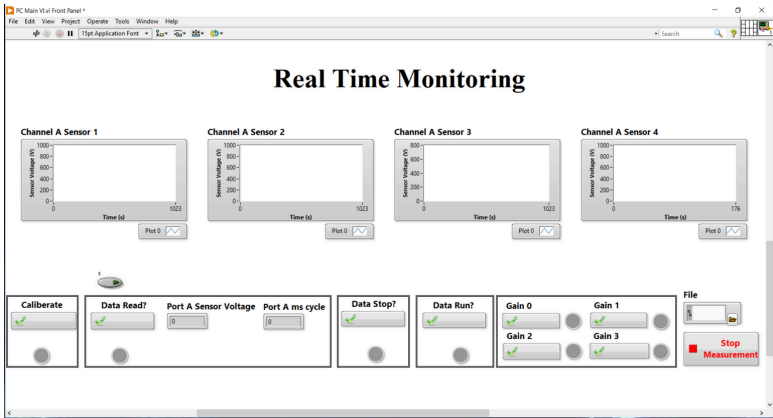
WHY IT MATTERS:

- PROVIDES AN ALTERNATIVE TO ANIMAL TESTING IN DRUG RESEARCH.
- ALLOWS REMOTE MONITORING FOR RESEARCHERS.

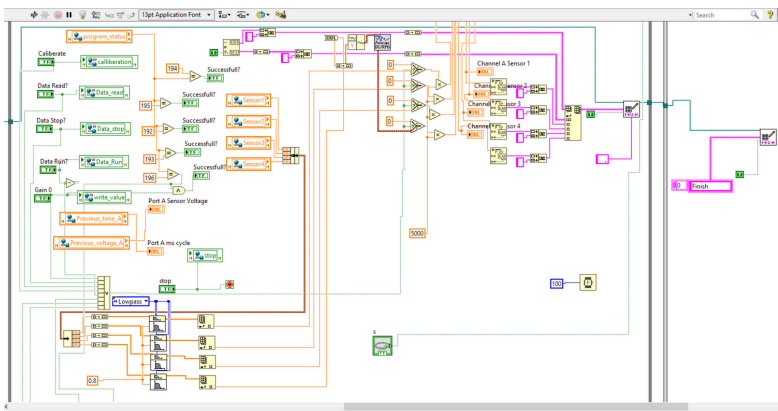
BLOCK DIAGRAM



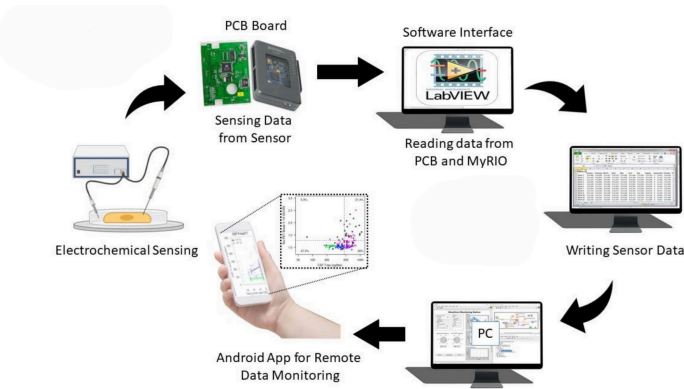
FRONT VIEW OF LABVIEW



BLOCK DIAGRAM OF LABVIEW



MATHODOLOGY



IMPLEMENTATION

