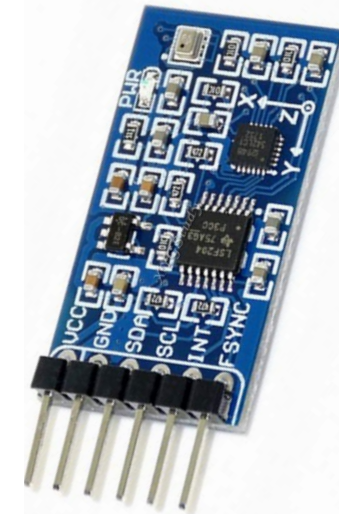
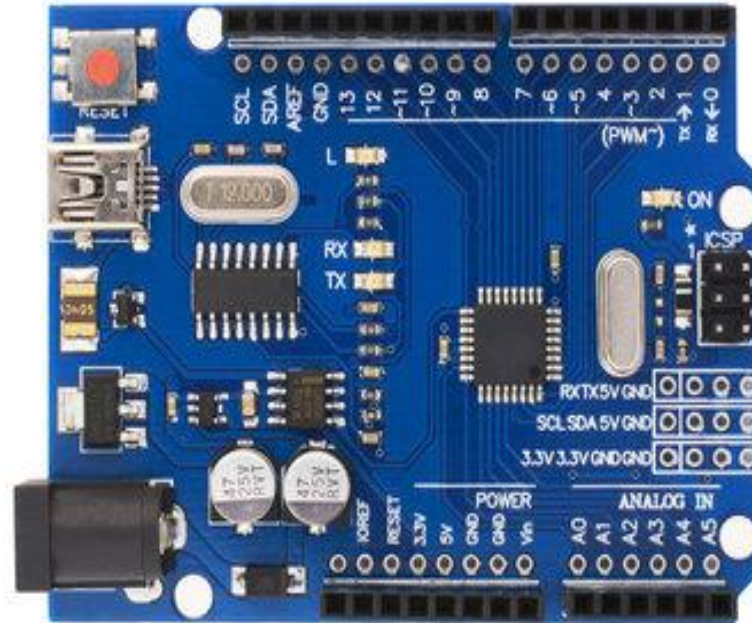


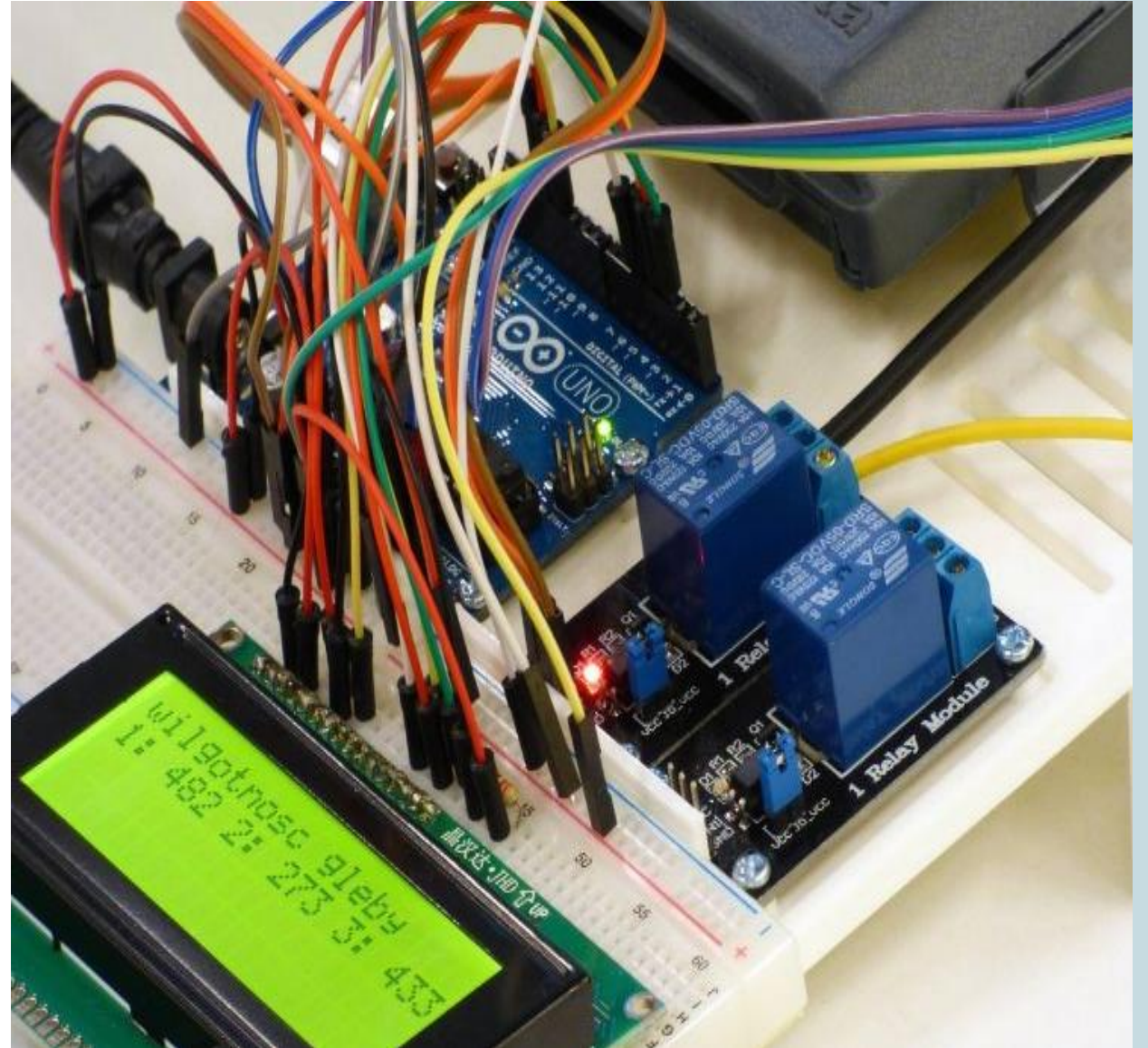
# AIR MARKER WITH IMU SENSOR FOR LETTER DETECTION



G31\_THURS\_2

# INDEX

- PROJECT OVERVIEW
- TEAM RESPONSIBILITIES
- TIMELINE
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# PROJECT OVERVIEW

- Objective:** Create an Air Marker that detects and predicts letters drawn in the air using an IMU sensor and Machine Learning.
- Working Principle:** Captures motion data (angular velocity & acceleration), processes it, and predicts letters via an ML model.
- Applications:** Gesture recognition, virtual writing, VR interactions, etc.

# TEAM RESPONSIBILITIES

Team Member	Role and Responsibilities
Nalin Angrish	Data Collection: Writing code to collect IMU sensor data
Shreshth Shukla	Hardware Setup: Connecting IMU sensor with microcontroller
Shubham	Preprocessing: Filtering and structuring raw sensor data
Shubham Singh	System Integration: Embedding ML model into the microcontroller
Nikunj Mahajan	Model Training: Implementing ML algorithms for letter recognition
Priyansh Gupta	Output & Testing: Displaying results and optimizing accuracy





# TIMELINE

WEEK 1

Research & component selection

WEEK 2

IMU sensor setup & microcontroller integration

WEEK 3

Data collection & preprocessing

WEEK 4

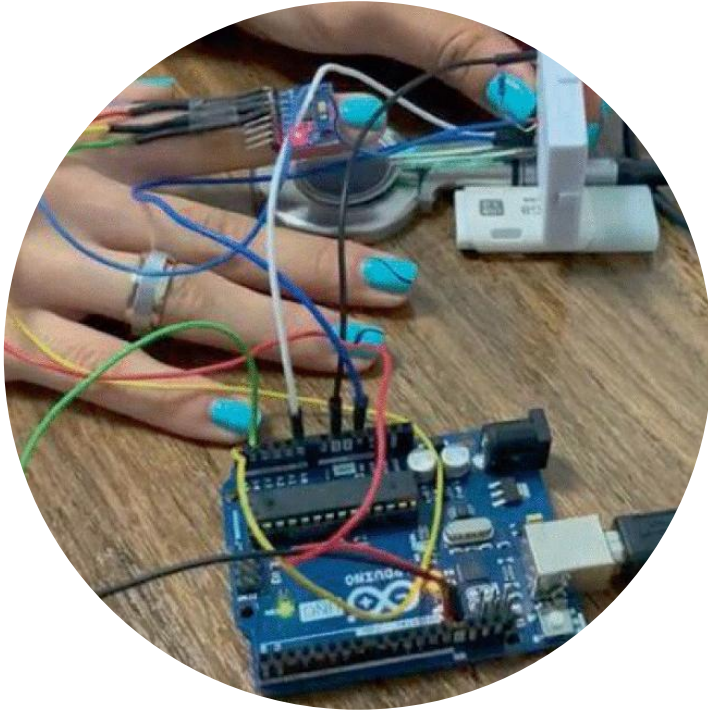
Model training & accuracy tuning

WEEK 5

Model integration with hardware

WEEK 6

Testing & final refinements



## EXPECTED OUTCOME

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- FUNCTIONAL AIR MARKER CAPABLE OF RECOGNIZING LETTERS
- DISPLAYING PREDICTED LETTERS IN REAL-TIME
- POTENTIAL APPLICATIONS IN EDUCATION, ACCESSIBILITY, AND INTERACTIVE SYSTEMS

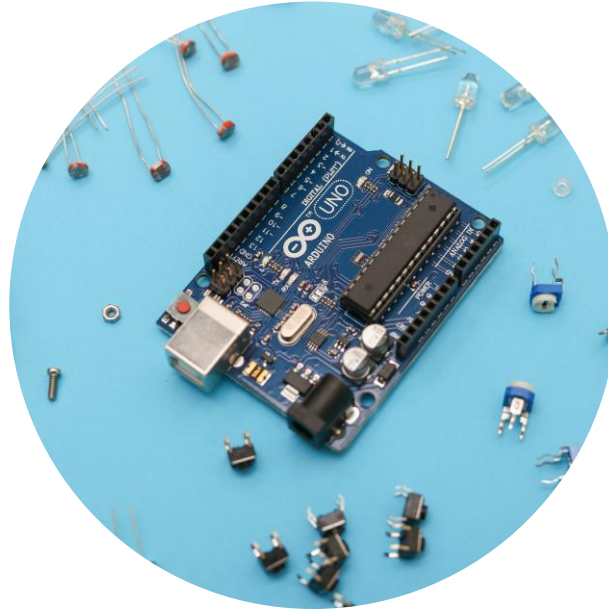
# CONCLUSION & FUTURE SCOPE

## Conclusion

Successful integration of IMU sensor and ML for real-time letter recognition.

## FUTURE ENHANCEMENTS

- EXPANDING TO RECOGNIZE WORDS/SENTENCES
- USING AI FOR IMPROVED ACCURACY
- INTEGRATION WITH AR/VR SYSTEMS



# THANK YOU



NALIN ANGRISH | SHRESHTH SHUKLA | SHUBHAM | SHUBHAM SINGH | NIKUNJ MAHAJAN | PRIYANSH GUPTA