American International University – Bangladesh
Faculty of Engineering
Department of EEE & CoE

MICROPROCESSOR & EMBEDDED SYSTEM PROJECT PROPOSAL FORM

SEMESTER: Summer 2021-2022

PROJECT TITLE: Air pollution detection using Arduino

Survey to develop a process for complex engineering problems considering cultural and societal factors (use pie chart):

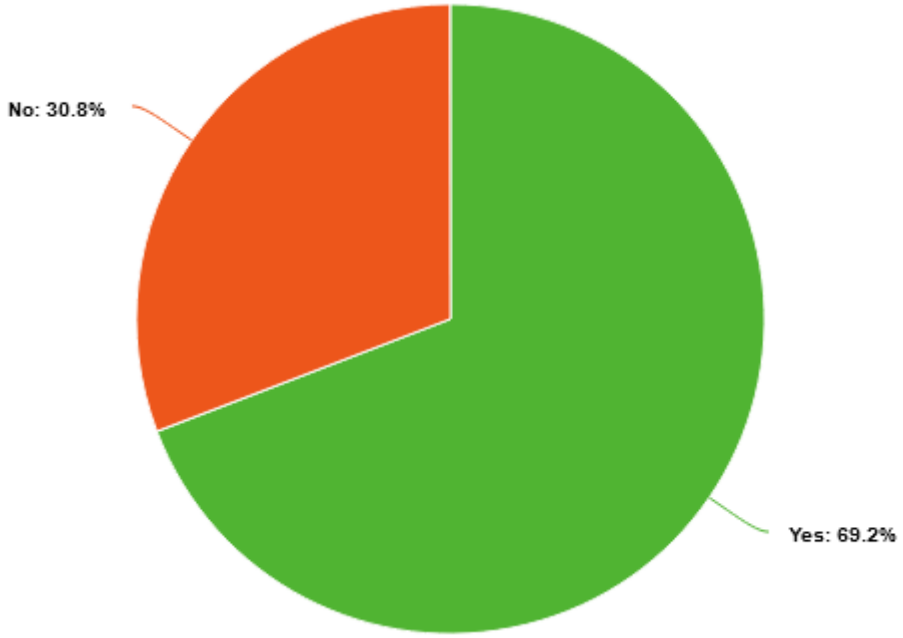


Fig 1: 69.2% people are concerned about air pollution

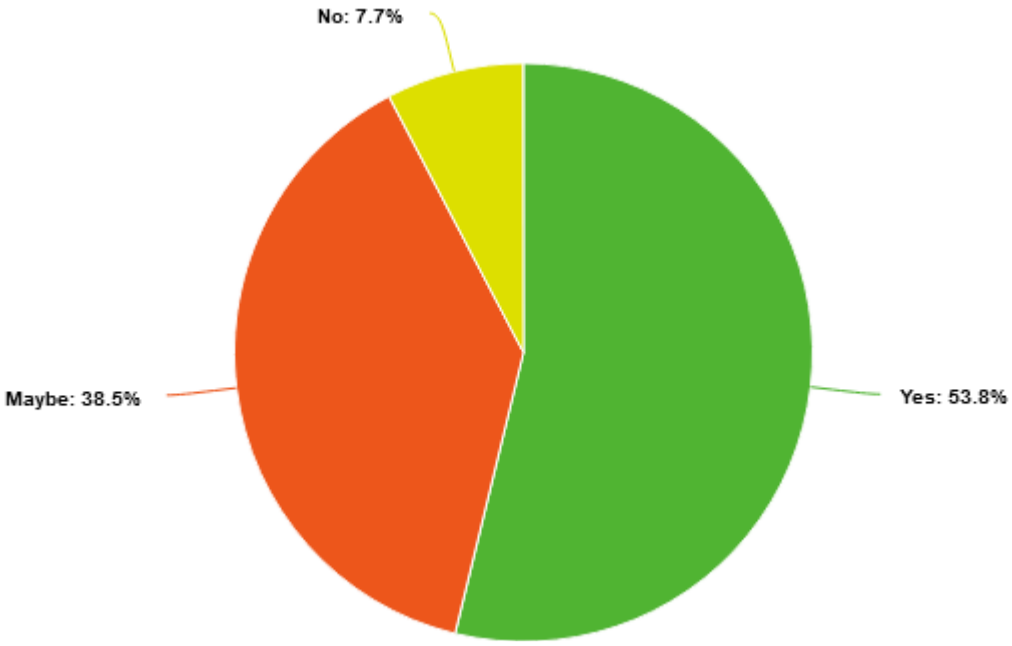


Fig 2: 53.8% people think the current actions against air pollution is okay

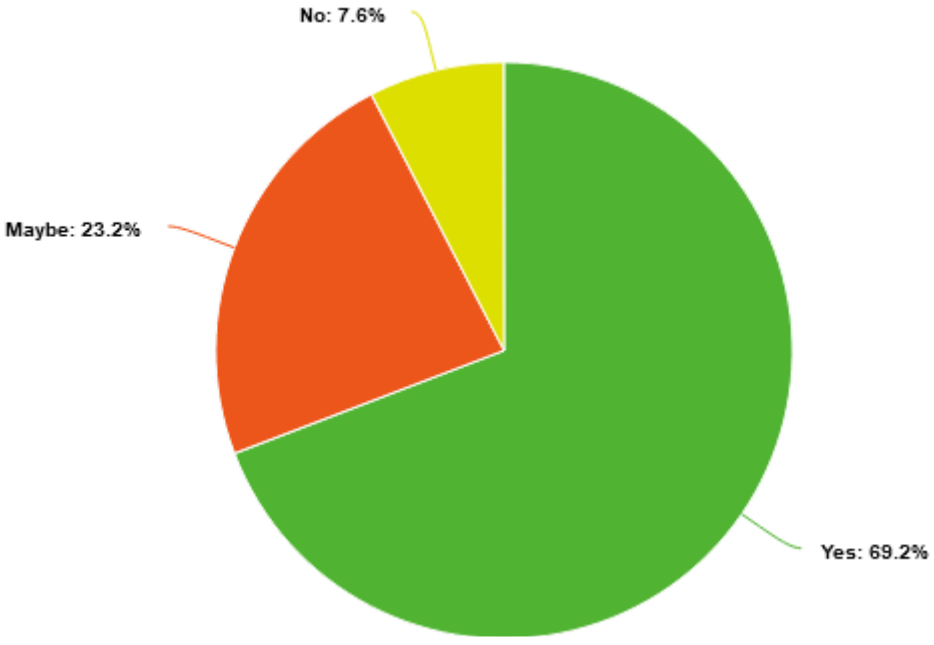


Fig 3: 69.2% people think more efficient steps should be taken against air pollution

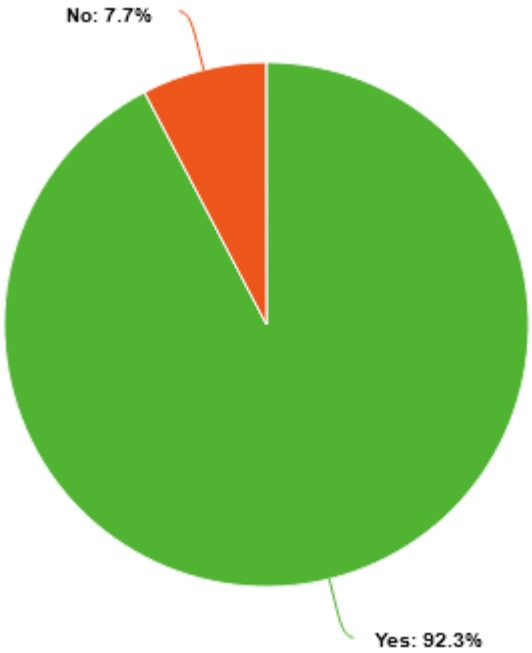
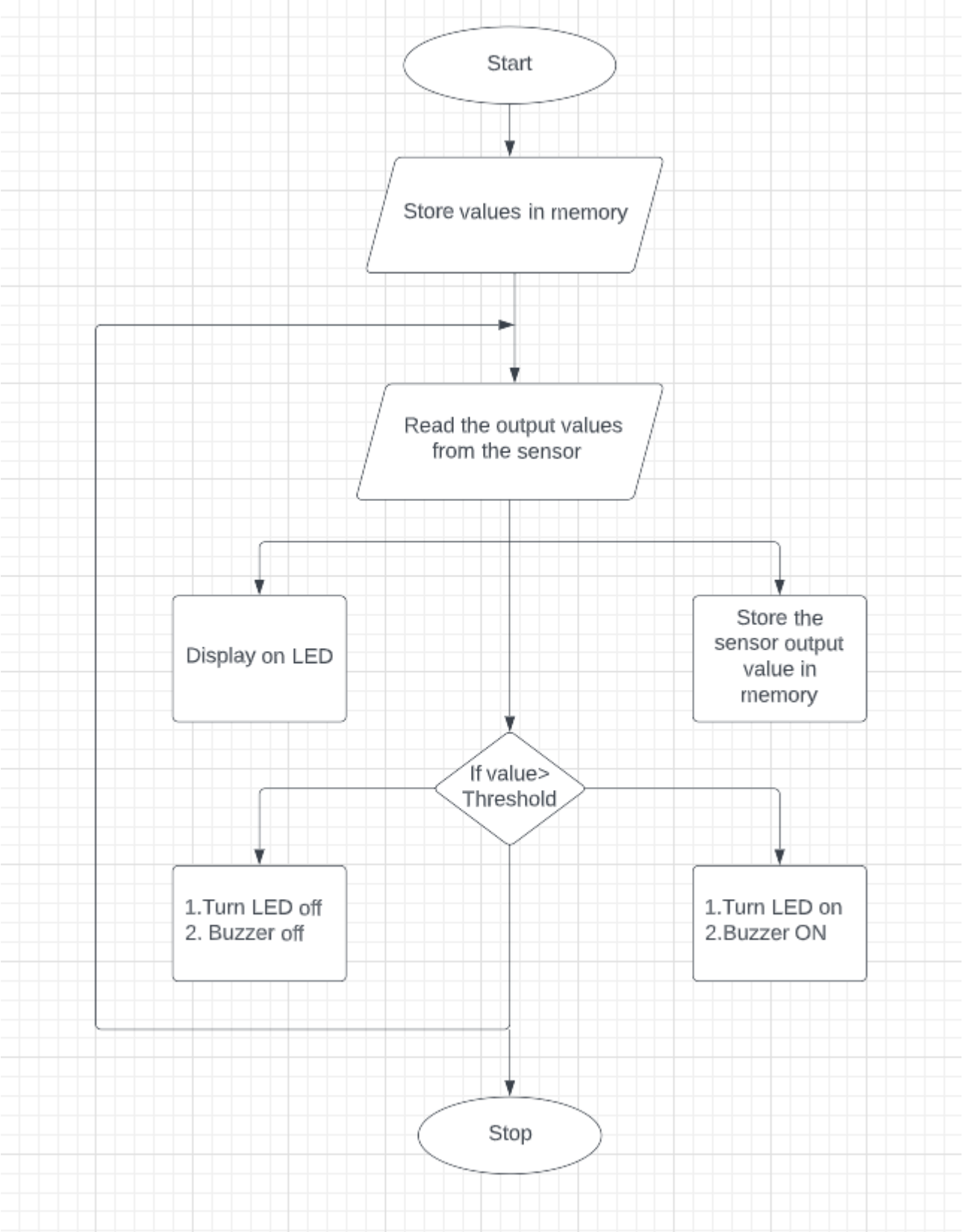


Fig 4: 92.3% people think steps taken against air pollution will result into better healthy life

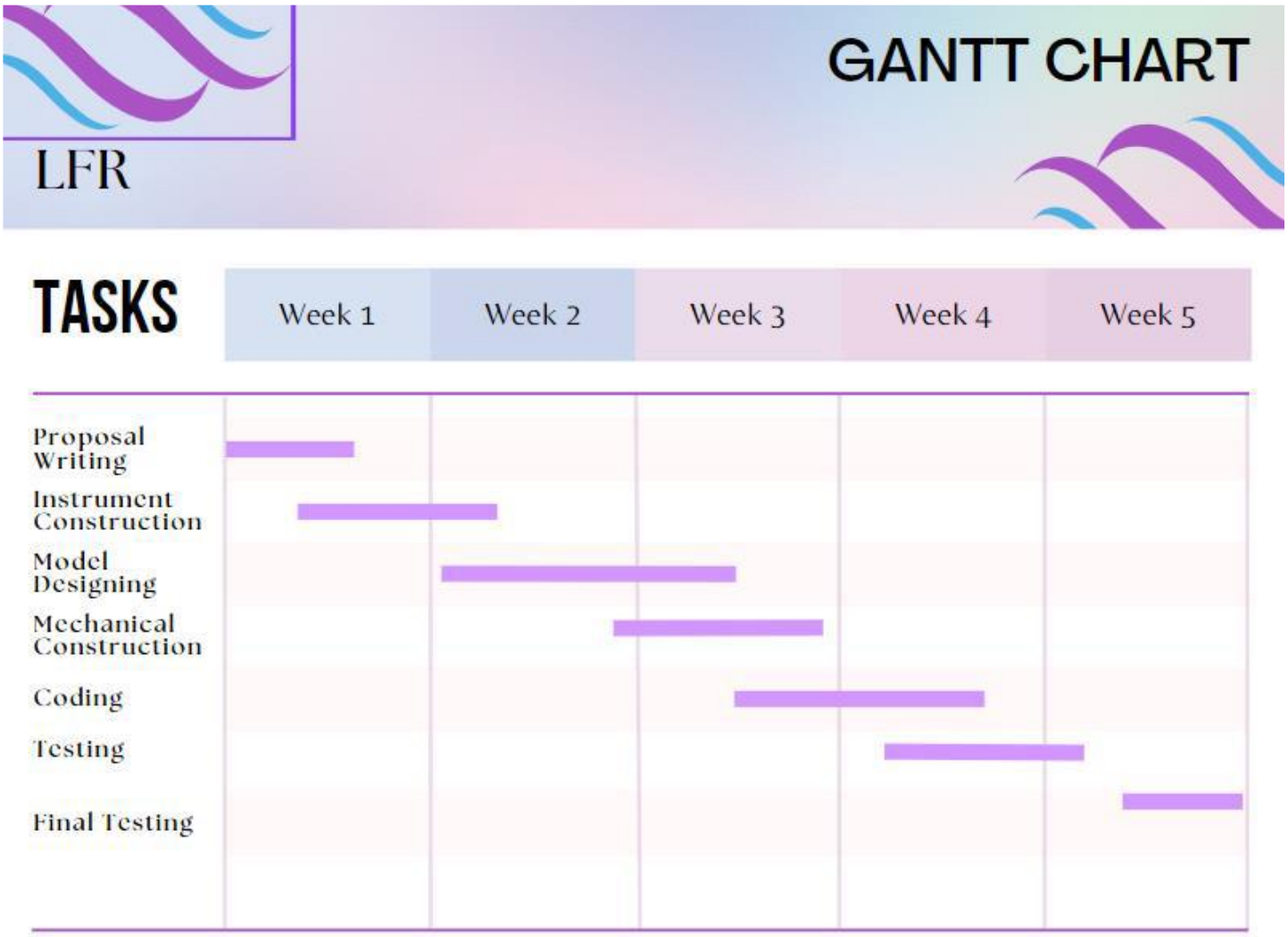
GOALS AND BENEFITS OF PROJECT:

The objectives of this project are to produce continuous measurements while being low cost, quick to react, and low maintenance. The major objective of this project is to use an air pollution monitoring system to track harmful substances, monitor air pollution, and raise public awareness of pollution.
The current status of air quality control in practically all industrial areas of our nation is based on taking samples just once or twice a day, therefore there is no knowledge about the time distribution of the intensity of polluting elements during the day. The biggest drawback of such a system is this. Currently, there are two ways to measure air pollution in the area. The first is non-automated passive sampling, and the second is ongoing internet monitoring (automatic). Although the monitor equipment for the passive sampling method is straightforward and affordable, it can only collect on-site monitoring parameters over a predetermined time period and cannot offer real-time readings. This low budget project will continuously measure the pollution rate in air and will help to actually get help for this problem.

EXPERIMENTAL BLOCK DIAGRAM:



PROJECT TIMELINE (GANTT CHART):



REFERENCES:

[1] De Zhou, Zhulu Lin, Liming Liu, Jialing Qi "Spatial-temporal characteristics of urban air pollution in 337 Chinese cities and their influencing factors", Environ Sci Pollut Res 28, 36234–36258 (2021).

[2] S P Karthi, P Janani Sri, M Manoj Kumar, S Akash, S Lavanya "Arduino based Air Pollution Detector System", 5th International Conference on Electronics, Communication and Aerospace Technology (ICECA)(2021)

[3] B. Amutha, C. Rajeshbabu, Ch Neehar and E. Sumanth, "GAS AND SMOKE DETECTION IN INDUSTRIES USING NodeMCU", Journal of Critical Reviews, vol. 7, no. 8, pp. 1504-1507, 2020.

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