IDEATION PHASE

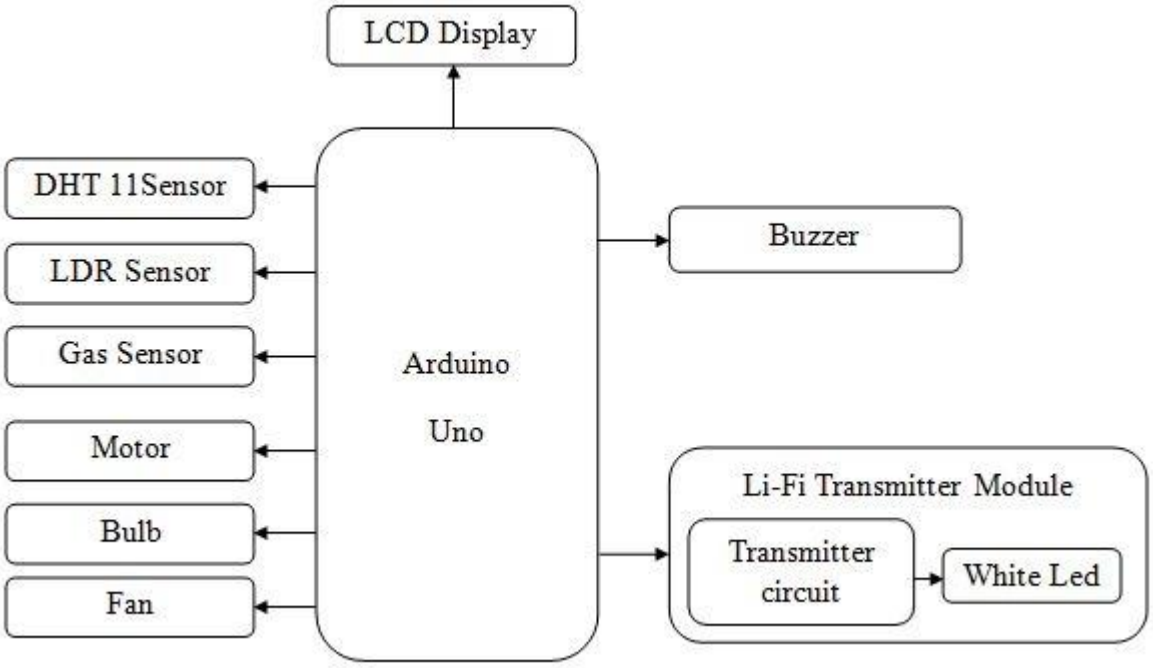
DEFINED PROBLEM

DATE	18.05.2023
TEAM ID	NM2023TMID14158
PROJECT TITLE	Industrial workers health and safety system based on internet of things
MAXIMUM MARKS	4 MARKS

OVERVIEW:

In recent days, the innovation towards a new occupational health and safety group in which work cultures are directed towards active safety values. It is predicted that the safety analysis techniques now in place are quite difficult to address the potential risks which weaken the era. A novel approach to analyzing different crucial criteria in various industrial sectors is explained carefully in this work. In this unique approach, accident reduction model technique is applied to determine the respective weights of three main criteria and seventeen sub-criteria as a way of enriching the decision-making process while in a problem. A survey was initiated in different industrial sectors to obtain reliable data for the research. The results show that the main criteria 'human safety' acquired a weight of 72.5% while the respective weights of primary criteria machine security and work environment safety fall to 8.9 and 18.4%. The weight of the main criteria, human safety indicates that the sub-criteria such as eye protection, manual lifting, material handling

practices, firefighting drills, training and safety officers are implemented to a greater extent in most of the surveyed industries.



DEFINED PROBLEM:

Industrial Safety is defined as safety management practices or precautions ensured during industrial crucial situations. In simple terms to avoid any human incident or machinery failure prevention measures are must which can be planned to deal in hazardous situations.Industrial safety management is how you create and maintain a work environment that is both safe and efficient. You use it to minimize risks, keeping both the assets and people in the facility safe. Without good safety management, you run risks of unscheduled downtime and

accidents.industrial safety refers to the safety management practices that apply to the industrial sector. Those processes aim to protect industrial workers, machinery, facilities, structures, and the environment. Industrial safety is overseen by federal, state and local laws and regulations.

WORKING

Arduino consists of both a physical programmable circuit board (often referred to as a microcontroller) and a piece of software, or IDE (Integrated Development Environment) that runs on your computer, used to write and upload computer code to the physical board. Arduino UNO is a microcontroller board based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header and a reset button.There are two required functions in an Arduino sketch, setup() and loop(). Other functions must be created outside the brackets of those two functions.Functions allow structuring the programs in segments of code to perform individual tasks. The typical case for creating a function is when one needs to perform the same action multiple times in a program. Functions help the programmer stay organized.Arduino programming language can be divided in three main parts: functions, values (variables and constants), and structure.

COMPONENTS:

LDR SENSOR:

LDRs (light-dependent resistors) are used to detect light levels, eg in automatic security lights. Their resistance decreases as the light intensity increases. In the dark and at low light levels, the resistance of

an LDR is high, and little current can flow through it.The LDR has a high value when no light is present. The value of resistance of the LDR depends on the type. In this case it's about 10k. As the light level increases the resistance drops, which makes the current increase (by Ohm's Law), which in turn, makes the voltage at A0 (Va0) increase.

LCD SENSOR :

A liquid-crystal display (LCD) is a flat-panel display or other electronically modulated optical device that uses the light-modulating properties of liquid crystals combined with polarizers. Liquid crystals do not emit light directly but instead use a backlight or reflector to produce images in color or monochrome.The liquid crystal display (LCD) panel is designed to project on-screen information of a microcomputer onto a larger screen with the aid of a standard overhead projector, so that large audiences may view on-screen information without having to crowd around the TV monitor.

DHT11 SENSOR:

The DHT11 is a basic, ultra low-cost digital temperature and humidity sensor. It uses a capacitive humidity sensor and a thermistor to measure the surrounding air and spits out a digital signal on the data pin (no analog input pins needed).The DHT11 uses one signal wire to transmit sensor readings to the Arduino digitally. The power comes from separate 5V and ground wires. There are two different variations of the DHT11 sensor you might come across. One type has four pins, and the other type is mounted to a small PCB that has three pins.