

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama", Belgaum-590 014



A

Project Report

ON

"AIR PURIFIER AND HUMIDIFIER USING WATER AS A FILTER"

Submitted in partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

IN

MECHANICAL ENGINEERING

BY

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ESTD: 2002



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Recognized by Government of Karnataka, Affiliated to VTU, Belagavi & Approved by AICTE, New Delhi)

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## CERTIFICATE

This is to certify that the Project Work entitled "AIR PURIFIER AND HUMIDIFIER USING WATER AS A FILTER" is carried out by Mr Ranganath K M (1SV18ME008), Mr Sagar M D (1SV18ME011), bonafide students of the Department of Mechanical Engineering in partial fulfillment of the requirements for the award of the degree of Bachelor of Engineering in Mechanical Engineering of the Visvesvaraya Technological University, Belagavi during the year 2021 - 22. It is also certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the Report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the said Degree.

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## ABSTRACT

Air pollution has created many problems in the environment mainly at towns and cities. Of the most polluted cities in the world, 21 out of 30 were in India in 2019. As per a study based on 2016 data, at least 140 million people in India breathe air that is 10 times or more over the WHO safe limit and 13 of the world's 20 cities with the highest annual levels of air pollution are in India. The 51% of pollution is caused by the industrial pollution, 27% by vehicles, 17% by crop burning and 5% by diwali fireworks. Air pollution contributes to the premature deaths of 2 million Indians every year. Emissions come from vehicles and industry, whereas in rural areas, much of the pollution stems from biomass burning for cooking and keeping warm. In autumn and winter months, large scale crop residue burning in agriculture fields – a cheaper alternative to mechanical tilling – is a major source of smoke, smog and particulate pollution. India has a low per capita emissions of greenhouse gases but the country as a whole is the third largest greenhouse gas producer after China and the United States .A 2013 study on non-smokers has found that have 30% weaker lung function than Europeans.

The Air (Prevention and Control of Pollution) Act was passed in 1981 to regulate air pollution but has failed to reduce pollution because of poor enforcement of the rules, An Act to provide for the prevention, control and abatement of air pollution, for the establishment, with a view to carrying out the aforesaid purposes, of Boards, for conferring on and assigning to such Boards powers and functions relating thereto and for matters connected therewith. WHEREAS decisions were taken at the United Nations Conference on the Human Environment held in Stockholm in June, 1972, in which India participated, to take appropriate steps for the preservation of the natural resources of the earth which, among other things, include the preservation of the quality of air and control of air pollution. In order to reduce the air pollutants like particulate matter (PM2.5) and CO2 an air filter is introduced. Our main goal is to create an air filter using waste materials and our main objective is to provide a pollution free environment free from harmful dust particles and gases. Even though there are many air filters to reduce air pollution they are considered very costly and not all can afford it. So we need to make an air filter which low of cost where everyone can make use of it. The air filter we make is made up of reusable plastic and even the filter media used is of low cost. The filter media used are ionic filters, foam filter and activated carbon membrane. The real time air quality can be monitored on both inlet and outlet using sensors like gas sensors and dust sensors. An Air Filter is device composed of fibrous or porous material which removes particulates like dust, pollen, mold and bacteria from the air. Air Filters are mostly used in

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