# OIL SPILL CLEANING DEVICE USING RASPBERRY PI

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## INTRODUCTION

The Smart Oil Saver (SOS) is an arm-based oil spill cleaning device using machine learning. The device uses live video stream to record the condition of the environment at the accident site. The A9G (GSM) will send a message to the user/responder about the discovery of oil. The prototype device is powered by 12 volts lead acid battery and solar panel. It is equipped with a Machine Learning model trained to automatically detects the presence of oil on the marine environment. SOS is based on ARM technology and uses machine learning algorithms to improve its oil spill cleaning capabilities. The device's size and weight must be carefully examined to be easily transported to the spill location. Machine learning has appeared as an effective tool for improving the detection. The potential for unforeseen consequences of its cleaning process, which employs dispersants, should be thoroughly evaluated to ensure that the advantages outweigh the environmental impact 2022. The number and volume of oil spills from tanker spill statistics over the last 50 years has dropped dramatically.

## METHOD

The Smart Oil Saver: An ARM-based Oil. Spill Cleaning Device using Machine Learning was tested to test its identity and.functionalities. The device will automatically detect the oil and send an alert message to the user. Once detected, dispersant will be deployed. It will charge the battery from the power of the Solar Panel. The water pump is responsible for the task of deploying oil. The relay acts as a. switch for the pump and the water pump. is responsible. for thetask of deploying the dispersant. The project prototype is an Arm-based oil spill cleaning device. The device uses a 200-watt solar panel for the purpose of harnessing sunlight. The Raspberry Pi, the brain of the system, uses the stored energy to power itself and other devices. When the Raspberry Pi detects oil via the camera, it triggers a relay,OIL SPILL CLEANING DEVICE USING RASPBERRY PI 51. The stored energy is harnessed by the Pi to power various devices that are connected to it. The project development encompassed a systematic approach to constructing the Smart Oil Saver. The Lead Acid Battery is employed to store the solar energy acquired during this process. The researchers use a a9g GSM module to enable the connectivity of the system. The lead acid battery is used to store solar energy during the production process. Once there is a substance detected the researchers use the a9G GSM Module to enable connectivity. Planned and designed the system flow of the Smart oil Saver system.

## RESULTS

The evaluation utilized a rating scale ranging from 1 to 4, where a rating of 4 represents the highest rating, and 1 the lowest rating. There was a total of 30 respondents who were able to take part and answer the evaluation. The Raspberry Pi Pi serves as the brain of the computer. It coordinates various functions such as utilizing the real-time user interface to display data and controls while the webcam controls the webcam. The system was used to assess the acceptability and quality of the system in terms of its efficiency. The Smart Oil Saver is prototype device has been developed to address the problem of oil spill through detection and cleaning up oil spills. Every participant was assigned a number ranging from 1 to 30 Computed Weighted Mean for Efficiency. The weighted mean for the viewpoints criterion was calculated as 3.44 (Very Acceptable). The Smart oil saver was used to detect and clean oil spills in a large blue container with improvised floaters. It was also used to test machine learning algorithms and to test the performance of the Raspberry Pi. Every participant was assigned a number ranging. from 1 to 30. The weighted mean for the compatibility criteria was calculated as 3.42 (Very Acceptable) The weightedmean for theOIL SPILL CLEANING DEVICE USING RASPBERRY PI was calculated at 3.52 (Veryacceptable) Figure 33 shows a graphical representation of the responses. Figure 35 illustrates a graphical representation of the responses. The device automatically releases an oil dispersant that is stored in the device. The device automatically emits an oil dispersed dispersant. The weighted mean for the Compatibility criteria was 3.42 (Very Acceptable) The weightedmean for the compatibility criterion was 3:67 (Highly Acceptable). The device can be used to clean oil spills in the Gulf of Mexico and the Atlantic Ocean. It can also be used in the United States to clean up oil spills on the Gulf Coast. It is not necessary to use the device to clean the Gulf coast. Figure 25 shows the effect of oil minutes after the deployment of water-based dispersant. The weighted mean for the viewpoints compatibility criteria was calculated as 3.44 (Very Acceptable) The weightedmean for the Compatibility criteria fiercelyguysen was calculated at 3.47 (Veryacceptable) Figure 39 shows the oil after 24-hour observation, and the water is now unclear

after the dispersant was used. The Raspberry  perpetuallyPi uses GSM to communicate with users, and a relay connected to it controls the 12V pump. The project evaluation determined the effectiveness of the developed system. The water droplets dispersed throughout the water column. The innovative approach helped to achieved more effective detection and cleaning up of oil, contributing to a solution for environmental protection. The project evaluation that is presented in this  Georgian chapter determined the. effectiveness of  the developed System. The system was developed by the French company RASPBERRY PI. It was developed to help with the cleaning up and detection of oil spills. The technology was developed as part of the French National Oil Company?s ?Smart Oil Saver? project.

## DISCUSSION

The Smart Oil Saver was developed based on the objectives of the study, as well as scope and limitations. The prototype device was developed to detect oil in the surface of water and to deploy chemical dispersants to counter the oil spill. The device features real-time monitoring of the testing area using the Webcam and a diaphragm water pump. It was evaluated as Very Acceptable in terms of functionality, accuracy, reliability, and maintainability. It received a ?Very Acceptable? rating with a grand weighted mean of 3.48.