



AUTOMATIC POTHOLE FILLING ROBOT

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ABSTRACT:

Potholes can significantly reduce both driving and road efficiency. According to data from the Ministry of Road Transport and Highways (MoRTH), there were a total of 5,626 fatalities from road accidents caused by potholes in 2018, 2019, and 2020, totaling 2,015, 2,140, and 1,471, respectively. As many as 4,775 and 3,564 accidents were caused by potholes in 2019 and 2020, respectively. The creation of effective pothole maintenance methods has been the focus of numerous researchers and transportation specialists. What we need is a efficient, cost friendly and long lasting pothole filling machine which need less human effort. The goal of this project is to design and build a prototype for an automated road maintenance vehicle known as the Automatic pothole filling robot. It can automatically find and repair potholes on road surfaces without human intervention operator support. A simple mechanical method for pothole detecting was developed. It helps to minimize the costs and complexity, which until now have been the main a drawback of autonomous road maintenance vehicles. Ultrasonic sensors are used to detect and measure the depth and width of the pothole. The robot will automatically fill the pothole and remove any extra tar based on the data it has collected.

I. INTRODUCTION

In recent years, there has been a sharp increase in the number of privately owned vehicles. Truck weights are substantially higher and are capable of carrying larger payloads. The collapse of railroads along with the weather conditions and improper maintenance undermining our roads makes it even worse. In addition to vehicle suspension damages, potholes can also cause serious accidents and long-term injuries. Another significant factor in the reduction of state money is the need for ongoing pothole repairs. Each year, our country alone spends lakhs of rupees on maintaining pavement. There for the need of pothole filling techniques that are both cost effective and less time consuming with very little human effort is necessary. Therefore using the advanced technologies available, as a solution to this problem an automatic pothole filling robot has been developed.

An automatic pothole filling machine determines the geometry of the holes and fills them with adequate materials. For this study secondary data has been collected. From the website of KSE the monthly stock prices for the sample firms are obtained from Jan 2010 to Dec 2014. And from the website of SBP the data for the macroeconomic variables are collected for the period of five years. The time series monthly data is collected on stock prices for sample firms and relative macroeconomic variables for the period of 5 years. The data collection period is ranging from January 2010 to Dec 2014. Monthly prices of KSE -100 Index is taken from yahoo finance.

II. OBJECTIVE

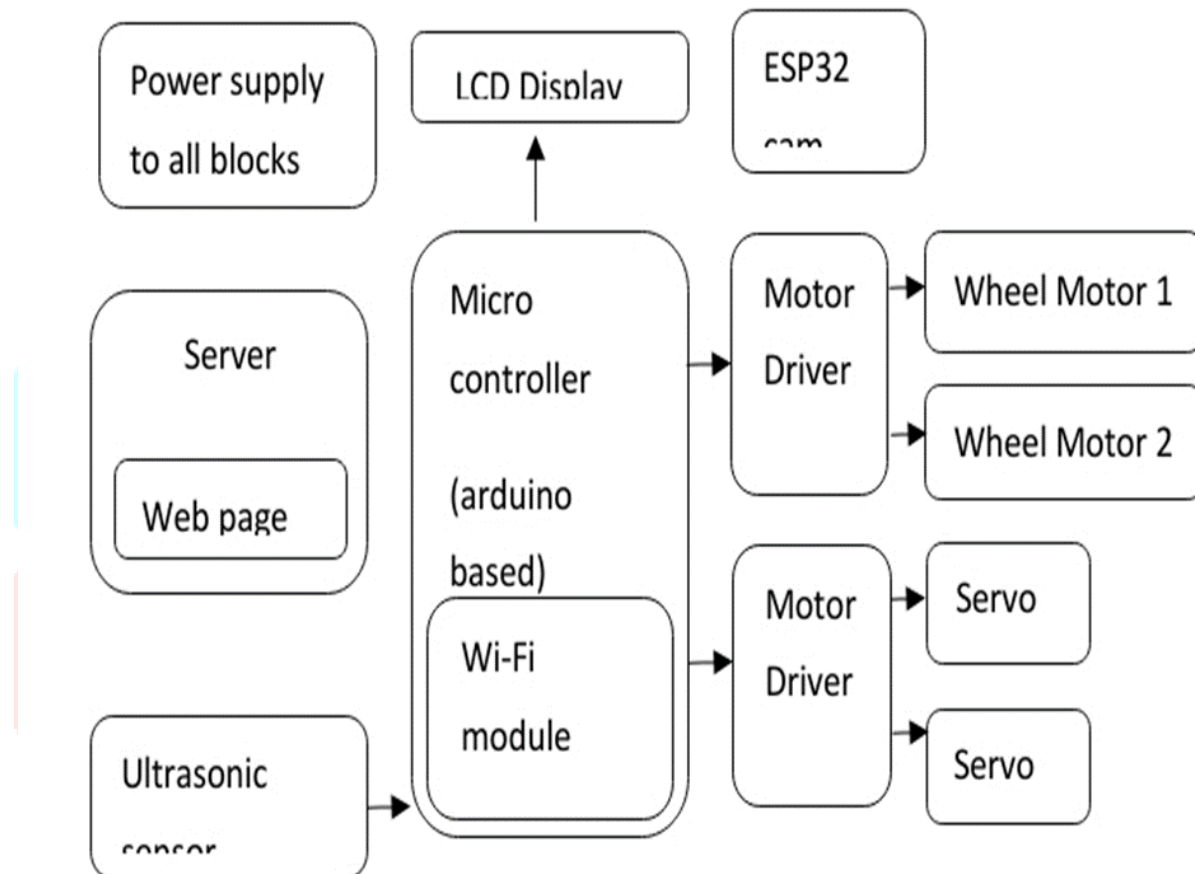
This project objective is to fabricate a robot which can detect and measure the depth and width of the pothole and fill it with necessary tar and wipe away the excessive tar.

To reduce human effort with the use of fully automatic robot. When we perform all these operations successively, we can increase production and saves time. To complete large amount of work in less time.

Workers can operate this robot through remote by sitting at one side and he can operate easily and therefore easy maintenance.

It is efficient and cost friendly and can thereby used everywhere by anyone.

III. SYSTEM BLOCK DIAGRAM



IV. ADVANTAGES

- Low cost
- Minimize accidents
- Reduce manpower
- Efficiency
- Easier and faster
- Low maintenance cost

V. APPLICATIONS

Repairs smaller as well as bigger potholes in roads, bridges, parking area etc.

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