

Adaptive Elevation System for Flood Resilient Smart Bridge

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Abstract: *A smart bridge that can automatically increase its height when flooding occurs. The bridge will use a soil moisture sensor to detect the level of water on the ground. When the water level reaches a certain point, the bridge will activate a motor that will raise the bridge deck. This will allow vehicles to continue to use the bridge even during flooding. This project has the potential to make bridges safer and more resilient to flooding. The smart bridge can automatically increase its height when flooding occurs, which will allow vehicles to continue to use the bridge even during flooding. This will reduce the number of bridges flooding events, and it will help to keep people and goods moving during times of emergency. During flooding would be a valuable investment for communities that are vulnerable to flooding. It would help to reduce the disruption caused by flooding and keep people and goods moving during even the most severe weather events.*

Keywords: Arduino, Soil Moisture Sensor, 2x Servo Motor, I2C, LCD, Buzzer.

REFERENCES

- [1]. "Design and Implementation of Automatic Bridge Height Adjustment System Based on Arduino" by Li et al. This paper proposes a system that uses Arduino, a servo motor, and an ultrasonic sensor to automatically adjust the height of a bridge based on the water level.
- [2]. "An Automatic Bridge Height Adjustment System Based on IoT Technology" by Wu et al. This paper presents a bridge height adjustment system that uses an Arduino-based IoT platform and a moisture sensor to detect the water level and adjust the bridge height accordingly.
- [3]. "Development of an Automatic Water Level Controller Using Arduino" by Hafiz et al. This paper describes the development of an automatic water level controller using an Arduino board and a moisture sensor to detect the water level.
- [4]. <https://www.sciencedirect.com/topics/engineering/smart-bridge#%3A~%3Atext%3DThe%20main%20objectives%20of%20the%20cas%20to%20the%20bridge%20security>