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EVOLVED TRADITIONAL PIGGY BANK: A HARDWARE ENHANCED APPROACH TO SAVINGS

OLIVIA UNCA ANAK LIAN

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ABSTRACT

Nowadays, instead of implying the habits of saving money, children tend to just depend on their parents or guardian whenever they are in need of using money. Besides, most of them may think that a simple coin box is boring and does not have a great safety feature which leads the children to have no interest in developing the habits of saving money since everyone could access the coin box. Therefore, an Evolved Traditional Piggy Bank project was proposed to create a smart coin box which integrated with the IoT Technology and engaged with the biometric sensor as the safety feature in order to help the parents to increase their children's interest in saving money. This project also offers an innovative way for the parents to track their children's saving activities by monitoring from their mobile phones as this project engaged with the mobile apps to track and monitor every saving made by the children. In this project, both software and hardware were used to develop the Evolved Traditional Piggy Bank model. For the software, this project integrates with IoT itself by using mobile applications from smartphone called Blynk for the parents to monitor their children's saving activities. As for the hardware, this project uses fingerprint sensor to detect the fingerprint and open the coin box but on the other hand, the parents also could open the coin box using the Blynk apps. Other than that, an ultrasonic sensor was also used to determine the level of the coin box whether it still has the space for the coin to be inserted or not. The gauge features in the Blynk apps would show the distance of coin from the ultrasonic sensor and parents could monitor it through their mobile phones. The main component for this project is the coin acceptor, it is used to detect the coin value and for this project, this Evolved Traditional Piggy Bank would automatically total up the money inside the coin box after a coin was inserted. The total coin would be displayed on both LCD of the coin box and also could be monitored on the Blynk apps. Therefore, parents could easily develop saving habits among their children.

Keywords−IoT technology, Level Coin Box, Mobile Phone, Mobile Apps, Fingerprint Safety features.

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INTRODUCTION

1.1 Introduction

The simple piggy bank has developed into a sophisticated savings account in an age of lightning-fast technology innovation, fusing vintage appeal with modern security and astute monitoring functions. This innovative concept presents an Evolved Traditional Piggy Bank: A Hardware Enhanced Approach to Savings, created to meet the needs of modern people who want to monitor their children financial progress in real time in addition to safeguarding their possessions. This inventive piggy bank is built around a strong security paradigm. Using a fingerprint sensor, the idea introduces biometric identification to the coin box concept by deviating from typical approaches. By limiting access to the coin box to just the verified owner, this clever addition significantly increases security above and above what is possible with a traditional piggy bank.

Furthermore, the Evolved Traditional Piggy Bank presents a cutting-edge method for keeping track of money. Now that the piggy bank is using an ultrasonic sensor, it can determine the current coin box level with remarkably high accuracy. Users may easily monitor their savings without having to physically examine the contents thanks to the use of sound waves to determine the distance between the sensor and the top surface of the coin stack. In addition to improving financial awareness, this real-time monitoring function enables proactive choices to be made about saving money.

The fundamental components of the classic piggy bank are not compromised by the addition of these cutting-edge innovations. Rather, it creates a harmonious equilibrium between traditional saving methods and contemporary needs. To add that the fingerprint sensor turns the piggy bank into a private vault that is only open to the legitimate owner. In addition, the