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MACHINE VISION BASED COIN SEPERATOR AND COUNTER

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Abstract

Automation holds a vital role in nearly all walks of the human life. Separation and counting of Indian currency coins is considered in this project. Nearly all the temples in India have donation boxes (Hundi). More human intervention is required to separate such coins and hence it could be automated and as a result it improves efficiency and reduces the time consumption in the process. This project adapts automation for this time-taking process. It involves the usage of digital image processing technology that aids in detecting the coins and differentiating them thus, making the process faster and more accurate.

KEYWORDS: - Ir Sensors, Arduno Nano,16x2 Lcd Display, Dash Board For Arduno Nano, Jumper Wires, Adaptor.

1. INTRODUCTION

In our country, there are more numbers of temples which have a lot of donation boxes. Many people use them and insert coins and currency notes into that as their religious donation. More human intervention is required to separate the currency coins that fell into the currency boxes (hundi). This is not reliable for today's fast world. So, we have to take corrective actions against this process. There are some machines available to count the currency notes, but they are not suitable for this purpose. Sorting of coins is a very time consuming and boring job. The manual method of counting the coins does not have any recording device for future usage. This is not only happening in temples but also in banks which deals with a greater number of coins and currency every day. Today in our country, there is a need for automation in every field. There are some machines for sorting and counting the coins, but they need to be operated manually and they are not suitable to assemble inside a donation box. People in temples need to spend more time on separating the coins, which is now not performed by those conventional machines. They become bored and getting tired of this continuous work. As well as this time taking process, we will also need automation. Automation with flexibility provides a good result. This will provide a solution for the process.

2. RELATED WORK

Basically, this project is all about replacing of humans with coin counting machine, while counting of coins with human help. Generally, in the places like temples, street

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vending machine and in the banks a lot of currency coins will be collected, it will take a lot of time and human effort to count the total value of the coins. This prototype consists of IR sensors, Arduino nano, LCD display and base board for nano and the adaptor. Now these IR sensors will detect the coin which we are inserted to the box based on the code we programmed in the Arduino, it will detect the coin and it will count the number of coins such as one rupee, two-rupee, five-rupee coins and the value of the coins will be displayed in the 16x2 LCD display.it will also display the total value of the coins.Manual method counting of coins the technique that is used to separate the coins by different demonstrations. The parameters are such as size and weight.The people who are counting the coins will give the accurate result in counting of the coins and the total amount.More human intervention is required to separate the currency coins that fell into the currency boxes (hundi). It also a very boring job. Now-a-days there is a shortage of labour.

3. IMPLEMENTATION

Our Project is a working model to sort variety of coins with different shapes and sizes and count them. The mode of operation of counting the coins and sorting them manually is not efficient, not accurate and time consuming and more labour work process. So, we want to define our problem solving all the flaws mentioned above by inventing a machine using sensors and micro controllers and else other required components.As of now only currency notes are counted and coins are ignored, for counting the coins it consumes much time and not so efficient by the humans. Nearly all the temples in India have donation boxes (Hundi). More intervention is required to separate such coins. So that coin counting machine is necessary for counting the coins for betterment of human life.The main aim of our project "MACHINE VISION BASED COIN COUNTING AND SORTING" is to developed system that automatically sorts the coin and counts the coin , As we know now-a-days counting the coins is done by manual method. In order to overcome this problem, our prototype is helpful in counting the coins easily without any interaction of a man kind which is not available in the market yet.

Requirement Analysis

- Arduino nano
- 3-IR sensors
- 16x2 LCD display
- Jumper wires / connecting wires
- Base board for nano
- Battery / Adaptor

Methodology

- Take the coins of different currency that is one-rupee two-rupee and five-rupee coin.
- Before that we have to interface the IR sensor Arduino nano and the jumper wires.
- Connect it to the VCC and ground of the base board for the nano and IR sensor and Arduino nano commonly to a 9-volt battery or to the adaptor for power supply.
- Complete the remaining circuitry part according to provided information.
- After giving the specific connections as mentioned we will insert the coins to the system.
- When the input is given that means the coin is inserted at the coin machine

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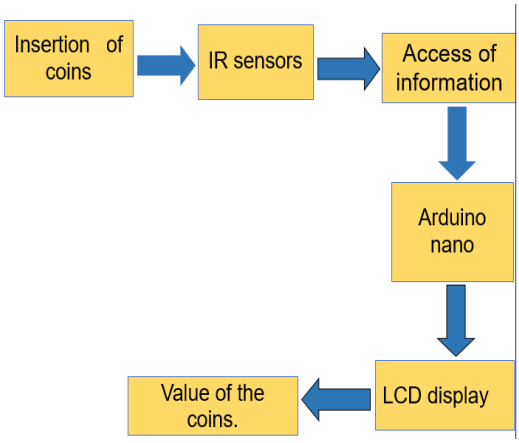
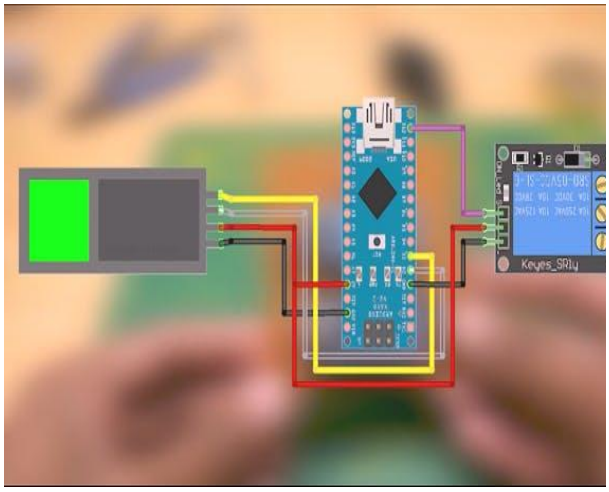
it detects the coin and if it matches with the specific currency coin.

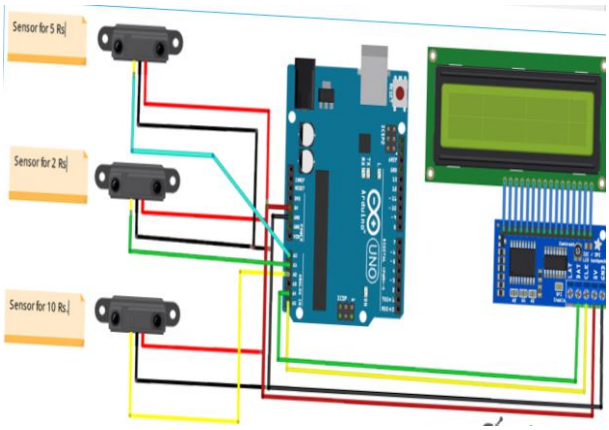
- Then automatically coin detects and counts the coin and then it will display on the lcd display.





4. EXPERIMENTAL RESULTS

Our final working model which is built in order to count and sort the coins in different sections with the help of an infrared sensor is made and the working principle is it is an arrangement where IR sensors are placed to sense different coins and Arduino UNO is used for processing the data and showing the total count value on LCD screen.



5. CONCLUSION

Finally, our project which is a working model to sort variety of coins with different shapes and sizes is made successfully. The IR sensors are interfaced with Arduino Nano development board along with LCD display. When each coin is inserted into the machine it obstructs the IR rays for short time. That particular IR sensor sends signal to Arduino Nano and the count of particular value changes by the currency value of that coin.

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