

Anti-Theft System for Library

Ms. Monika Kute¹, Sharva Salgarkar², Bhimsingh Rathod³, Pranit Salunke⁴, Praveen Chate⁵

Professor, Department Computer Technology¹

Students, Department Computer Technology^{2,3,4,5}

Pimpri Chinchwad Polytechnic, Pune, Maharashtra, India

Abstract: Object detection and tracking could be an immense, vivacious however inconclusive and trending area of computer vision. Due to its immense use in official surveillances, tracking modules applied in security and lots of other's applications have made researchers to devise a lot of optimized and specialized methods. For validation purpose live input video will be taken for the same where book will be getting detected and it can be simulated same for real-time through external hardware added. External Hardware will be having RFID integrated to detect if book is issue or not. In the end we see the proper optimized and efficient algorithm for object detection and alert for security. Object Detection is computer vision technique used to detect object and identify its localization. This technique is not only used to identify the location but also to identify which type of object it is. This CV technique is used to detect objects in real time while maintaining the level of accuracy. By bringing some advancement in it, this system can be very helpful for people to keep track of their precious things or devices which are very expensive and need to be protected. Open CV (Open-Source Computer Vision Library) is a library of programming functions mainly aimed at real-time computer vision..

Keywords: Anti-Theft System

I. INTRODUCTION

Literature Survey

Object Detection Based on YOLO Network

- Yolo is an algorithm which is used to detect and recognize small objects more accurately.
- In comparison to recognition algorithms, a detection algorithm does not only predict class labels but detects locations of objects as well.

Object Detection and Tracking using Tensor Flow

- Tensor Flow is the library of Python which plays important role in recognizing and detecting an image.
- Tensor Flow is at present the most popular software library. There are several real-world applications of deep learning that makes Tensor Flow popular. Being an Open-
- Source library for deep learning and machine learning, Tensor Flow finds a role to play in text-based applications, image recognition, voice search, and many more.

Object Detection Tutorial in Tensor Flow: Real-Time Object Detection

- This system captures images and detects the object continuously in real time.
- Real-time object detection is the task of doing object detection in real-time with fast inference while maintaining a base level of accuracy.

Object Detection through Modified YOLO Neural Network

- Yolo is an algorithm which is used to detect and recognize small objects accurately and location as well.
- YOLO struggles with small objects. However, with YOLOv3 we see better performance for small objects, and that because of using short cut connections.

II. MODULE IDENTIFICATION

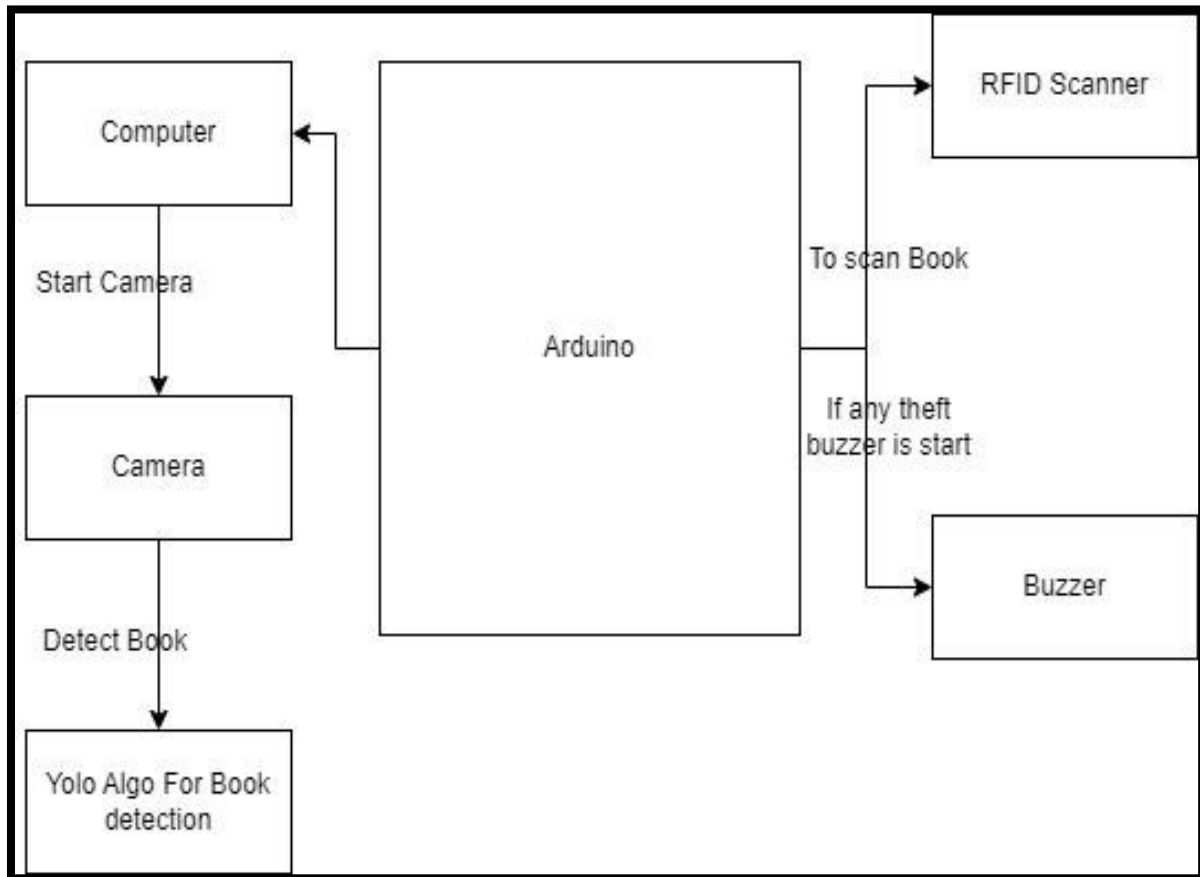
Here, we tend to square measure victimization parts like external camera, computer, Arduino controller, buzzer. The camera can capture the pictures returning before of it and also the detection half is finished victimization cryptography within the computer. The Arduino Nano used here is for serial communication between the computer and buzzer.

Buzzer used here provides us the alert of the object being incomprehensible

Arduino Nano is connected to Hardware i.e RFID. Student have to take book out from thebox if he/she does not take book out of the RFID Box than buzzer will ring. If book is notissue and student take book out without box, it will start buzzer.

“You only look once” is the full form of “YOLO” a single shot detection algorithm whichwas introduced by Joseph Redmon in May 2016. Although the name of the algorithm may sound strange, it gives a perfect description of this algorithm as it predicts classes and bounding boxes for the whole image in one run of the algorithm.

III. ARCHITECTUTE DIAGRAM



IV. REQUIREMENT

Technical requirement

- Java 8 and above
- Python

Hardware Requirement

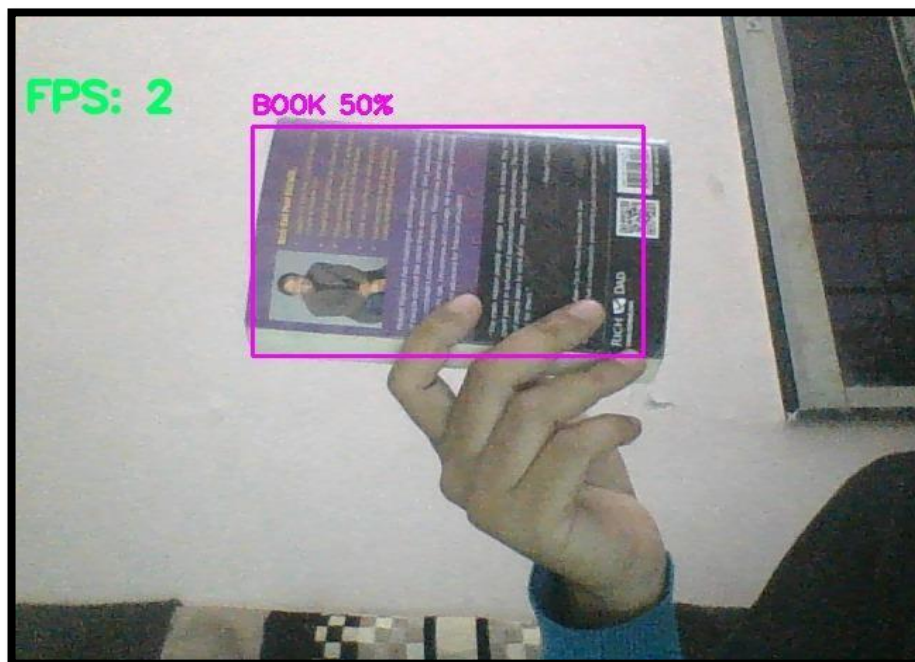
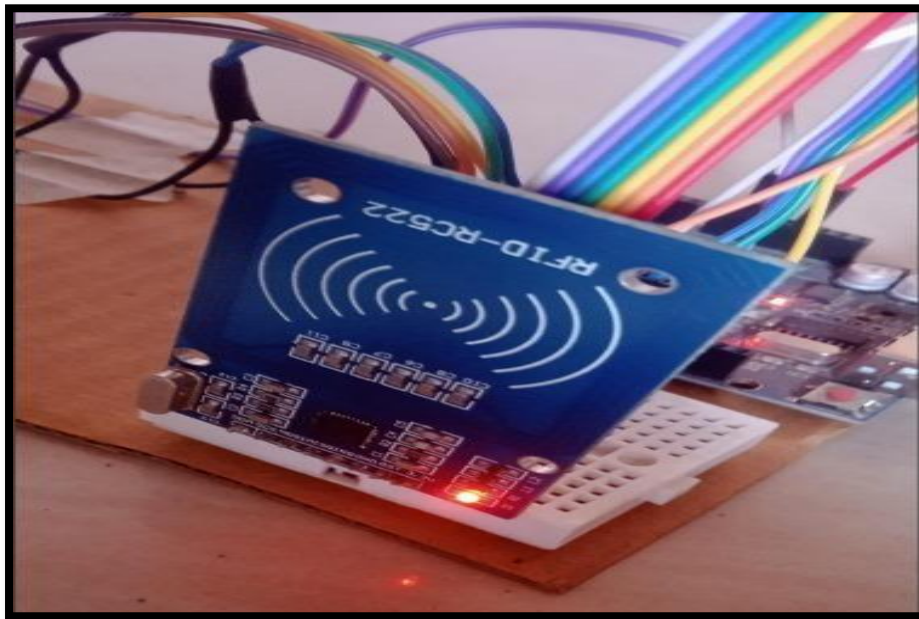
- PC or Laptop
- RAM, HDD
- Arduino
- RFID
- Camera
- Jumper Wires
- Resistor

- Servo Motor
- Power Supply Board

Software Requirement

- Eclipse
- Java 8 or above
- Python

V. IMPLEMENTATION RESULT



VI. CONCLUSION

Those areas near the floods the proposed early flood detection plan is trying to help people who are not affected by the floods the system can give a shocking word to the people who will be affected by the floods. So, the proposed system is helping people to save their lives. life because of the flood.

REFERENCES

- [1]. Kislai Keshri - "Object Detection Tutorial in Tensor Flow: Real Time Object Detection"
- [2]. R. Sujeetha, Vaibhav Mishra "Object Detection and Tracking using Tensor Flow" ISSN: 2277-3878, Volume-8, Issue-1, May 2019
- [3]. Chengji Liu, Yufan Tao, Jaiwei Liang "Object Detection Based on YOLO
- [4]. Network" 2018 IEEE 4th Information Technology and Mechatronics Engineering Conference (ITOE) 10.1109/ITEOC.2018.874064
- [5]. Tanvir Ahmad - "Object Detection Through Modified YOLO Neural Network" International Journal of Engineering Research & Technology (IJERT), volume 2020 | Article ID 8403262
- [6]. Rodrigo Verschae, Javier Ruiz-del-Solar, "Object Detection: Current and Future Directions Perspective", A Practical in Frontiersin Robotics and AI, December 2015.
- [7]. Zhiqiang, W., & Jun, L. (2017, July). A review of object detection based on convolutional neural network. In 2017 36th Chinese Control Conference (CCC) (pp. 11104-11109). IEEE.
- [8]. Huang, R., Pedoeem, J., & Chen, C. (2018, December). YOLOLITE: a real-time object detection algorithm optimized for nonGPU computers. In 2018 IEEE International Conference on Big Data (Big Data) (pp. 2503-2510). IEEE.