

Research Design II

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Abstract—The paper goes over the implementation and the testing of Local Binary Patterns Histograms (LBPH) algorithm in a face recognition system. With the aim to use this technology to eliminate the need for the use of a physical key to enter a house.

I. INTRODUCTION

THE proposed system uses a Haar cascade classifier to detect faces, a Local Binary Patterns Histograms (LBPH) algorithm for face recognition, and a Raspberry Pi camera for real-time video capturing. The ultimate goal for the research carried out is to evaluate the feasibility of using the above mentioned technologies as a cost-effective and secure home entry solution in replacement of a conventional lock and key. The rational behind researching this topic is due to flaws with traditional security measures which include, the need for a key, the chance of the key being lost or stolen or even forgotten in the premise, these flaws all lead to the same scenario the user being unable to enter the home. Facial recognition has been emerging more and more as a technology and should be further investigated in the above use case due to its non-transferability which climates the loss of the key in the traditional security system and also the convenience, the user can never be locked out of the house cause his face now the replacement key is always available. This paper goes through fundamental aspects such as the number of training images required for reliable facial recognition, more over it goes through the effect of using gray scale images. The paper positions itself within two major areas of studies it basis itself on computer vision and also practical home security solutions, it is set apart from the vast majority of studies that research facial recognition by the use of accessible hardware in this case the raspberry pi four and the raspberry pi camera thus extending to the more cost effective smart home solution rather than a purely academic or high-end applications of facial recondition.

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II. CONCLUSION

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APPENDIX A

PROOF OF THE FIRST ZONKLAR EQUATION

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APPENDIX B

Appendix two text goes here.

ACKNOWLEDGMENT

The authors would like to thank...

REFERENCES

- [1] H. Kopka and P. W. Daly, *A Guide to L^AT_EX*, 3rd ed. Harlow, England: Addison-Wesley, 1999.



Michael Shell Biography text here.

John Doe Biography text here.

Jane Doe Biography text here.