# ABSTRACT

The smart mirror idea aimed to integrate technology seamlessly into people's lives by putting it where everyone's routine eventually collides, the bathroom. The goal of the smart mirror is to increase a user's productivity by saving them time. The smart mirror provides a near effortless experience that allows the user to just walk up and be greeted with information they would typically need another device for. Despite the fact this information can be found on the user's other devices, it's the time-saving convenience of having this information available during the typical bathroom routines. The smart mirror has the necessary applications and features needed for time efficiency focused device. The mirror provides common information most people check their smartphones or tablets for, like calendar, weather, time, their recent emails as well as the latest headlines. This allows the users to read, think, and plan their day while getting ready in the morning or night.

# ACKNOWLEDGEMENT

A successful project is a fruitful culmination of the efforts of many people. Some directly involved and others who have quietly encouraged and extended their invaluable support throughout its progress.

We would also like to convey our heartfelt thanks to our **Management** for providing us with the good infrastructure, laboratory facility, qualified and inspiring staff whose guidance was of great help in successful completion of this project.

We profoundly indebted to the Director **Dr. K.E Prakash**, for his support throughout the project work by innumerable acts of timely advice and encouragement.

We are extremely grateful and thankful to our beloved **Principal Dr. Dilip Kumar K** for providing a congenial atmosphere and also the necessary facilities for achieving the cherished goal.

We feel delighted to have this page to express my sincere thanks and deep appreciation to **Prof. Anand S. Uppar, Head of the Department, Computer Science and Engineering**, for his valuable guidance, keen interest and constant encouragement throughout the entire period of this project work.

We would like to thank our project guide **Ms. Komala B C** Assistant Prof**, Department of Computer Science and Engineering** for her valuable guidance and constant support throughout the project work.

We are thankful to all the teaching and non-teaching staff for allowing us to successfully carry out the project work.

Finally, we also thank our family and friends who provided lot of support in this project work.

# CONTENTS


| CHAPTER | CHAPTER NAME | PAGE NO |
|---|---|---|
| **1** | **Introduction** | **01** |
| **2** | **Literature Survey** | **02** |
| **3** | **System Requirements** | **05-06** |
| 3.1 | Functional Requirements | 05 |
| 3.2 | Non-Functional Requirements | 06 |
| **4** | **System Design** | **07-10** |
| 4.1 | Introduction Purpose | 07 |
| 4.1.1 | Scope of the project | 07 |
| 4.1.2 | System Overview | 07 |
| 4.2 | Architectural Design | 08 |
| 4.2.1 | Dataflow Diagram | 09 |
| 4.2.2 | Sequence Diagram | 10 |
| 4.2.3 | Usecase Diagram | 10 |
| **5** | **Implementation** | **11-38** |
| 5.1 | Hardware | 11 |
| 5.1.1 | One-way mirror | 12 |
| 5.1.2 | Display | 12 |
| 5.1.3 | Raspberry Pi 2 | 13 |
| 5.1.4 | Frame and Support | 13 |
| 5.2 | Software | 13 |
| 5.2.1 | Developer Tools | 14 |
| 5.2.2 | MagicMirror UI | 14 |
| 5.2.3 | Developing Apps for MagicMirror | 16 |
| 5.3 | Modules | 17 |
| 5.3.1 | Clock | 17 |
| 5.3.2 | Calendar | 20 |
| 5.3.3 | Weather forecast | 27 |
| 5.3.4 | Alert | 32 |

| | | | |
|---|---|---|---|
| | 5.3.5 | Compliments | 36 |
| | 5.3.6 | Email | 38 |
| **6** | | **System Testing** | **41-43** |
| | 6.1 | Testing Methodologies | 41 |
| | 6.1.1 | Unit Testing | 41 |
| | 6.1.2 | System Test | 42 |
| | 6.1.3 | White Box Testing | 43 |
| | 6.1.4 | Black Box Testing | 43 |
| **7** | | **Results and Discussions** | **44-45** |
| **8** | | **Conclusion & Future Enhancement** | **46** |
| | 8.1 | Conclusion | 46 |
| | 8.2 | Future enhancement | 46 |
| | | **References** | |

# LIST OF FIGURES


| FIGURE NO | FIGURE NAME | PAGE NO |
|---|---|---|
| 4.1 | System design | 8 |
| 4.2 | Dataflow diagram | 9 |
| 4.3 | Sequence Diagram | 10 |
| 4.4 | Use Case Diagram | 10 |
| 5.1 | Sketch of the hardware design required for the smart mirror | 11 |
| 5.2 | Schematic diagram of light reflection on a one-way mirror | 12 |
| 5.3 | Layers of software stack of Magicmirror UI | 14 |
| 5.4 | User interface for Magicmirror | 15 |
| 5.5 | Magicmirror boot sequence and basic operation | 16 |
| 7.1 | List of events | 44 |
| 7.2 | Weather forecasting | 44 |
| 7.3 | Email notification | 45 |
| 7.4 | News feeds | 45 |

# LIST OF TABLES


| TABLE NO | TABLE NAME | PAGE NO |
|---|---|---|
| 5.1 | Configuration for clock API | 17 |
| 5.2 | Property values of calendar | 21 |
| 5.3 | Configuration options for calendar | 25 |
| 5.4 | Authentication options for calendar | 27 |
| 5.5 | Configuration for weather forecast | 27 |
| 5.6 | Configuration options for Alert | 33 |
| 5.7 | Notification Parameters | 34 |
| 5.8 | Alert Parameters | 35 |
| 5.9 | Compliments Configuration Options | 36 |
| 5.10 | Configuration Options for Email | 39 |