Smart Mirror RORRIM

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Background

Many health monitoring devices are single-purpose and inconvenient for daily use. For example, a thermometer solely measures temperature and is not used everyday. Similarly, mirrors are single-purpose and an everyday essential.

RORRIM encourages users to proactively monitor their health by displaying health information in plain view through giving health recommendations.

Project Goal

RORRIM differs from other smart mirrors in that it is health-centric. In addition to state-of-the-art design and personalized features, RORRIM incorporates non-invasive devices to help end-users monitor health information such as:

- Blood Oxygen Level
- Respiration Level
- Sleep Cycle
- Stress Level
- Temperature

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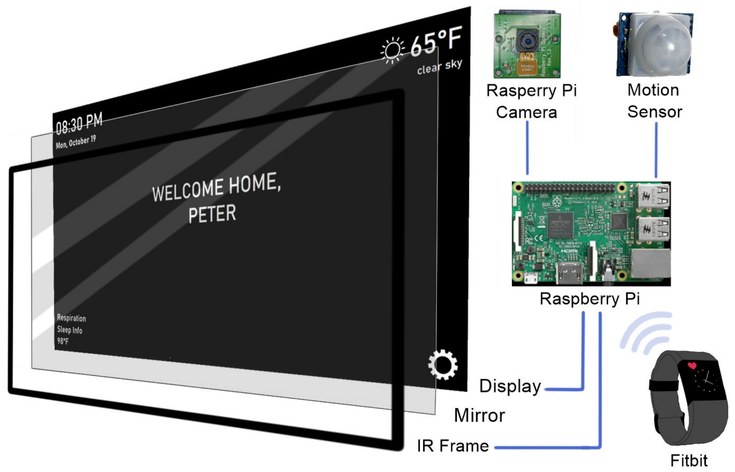
Hardware Components



Accomplishments

- Displays a home screen with standard smart mirror widgets, such as time and weather
- Displays simple health information from Fitbit: heart rate and step count
- Uses facial identification to recognize different users and store information
- Accepts Touch Input
- Sync health information from Fitbit for machine learning to create health recommendations
- Integrate PIR sensor to detect motion

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Timeline

Future Work

- Recommendation feature: inferences on health data using machine learning
- Cloud Scaling
- Encryption: keeping user privacy
- Additional features: skin irregularity, adaptive lighting

References

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[2] R. Ravichandran, E. Saba, K.-Y. Chen, M. Goel, S. Gupta, and S. Patel, "WiBreathe: Estimating respiration rate using wireless signals in natural settings in the home," 2015 IEEE International Conference on Pervasive Computing and Communications, PerCom 2015, pp. 131–139, Jul. 2015, doi: 10.1109/PERCOM.2015.7146519.
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