

StyLight: Smart Note-taking System

Problem Statement

Every student is looking for a way to take notes faster and more efficient while not having to carry their heavy notebooks in their backpacks.

With our product, *StyLight*, any student can greatly minimize their expenses and increase productivity.

Existing Solutions

- **Laptops and tablets**
 - Expensive
 - Easily breakable
 - Can be bulky and heavy
 - Distracting
- **Notebooks, binder and loose leaf paper**
 - Heavy
 - Take up too much space
 - Easy to lose
- **Other pens that track movement**
 - No real time feedback to see what you're writing



Our Solution

StyLight:

- Projects the student's mobile screen in wider dimensions onto any surface
- Using our carefully engineered stylus, the user is able to interact with the projected screen

Benefits:

- Cheaper than a laptop or computer
- Everyone already has a smartphone
- Lighter than binders and notebooks
- Save and store all notes digitally

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LUMOTECH
WRITE BRIGHT

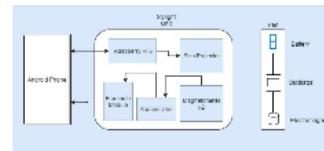
Magnet Approaches

Pros:

- Using electric field to locate the pen
- Will still be able to detect if covered by hand or in bright light

Cons:

- Interference
- Pen will be heavier
- More intensive calculations



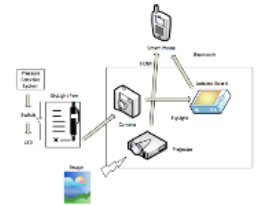
Camera Approaches

Pros:

- Not a lot of electronics in the pen, making it slim and light
- No difficult computations, therefore delay would be small

Cons:

- Led would be undetectable in bright light or if covered with hand



Future Work

- Adding rechargeable battery as opposed to AC power.
- Keystone correction of the projected screen.
- Pen's position is converted into correlated coordinates of the smartphone's screen.
- Bluetooth module; sending touch events to smartphone.
- A battery bank is added to the system that can last for minimum of 4 hours powers StyLight.

Conclusion

- StyLight is a durable, compact solution to combining the large surface area of a tablet with the communication and file sharing capabilities of a smartphone.
- Connecting a smartphone to StyLight will enable the modern student to project their lecture notes onto any surface.
- The user can use a specially designed stylus to write their notes onto the projected screen.

References

- Ke-Yu Chen, "UbiComp Researcher", 2016. [Online]. Available: <http://www.keyuc.com/research/Finexus/>. [Accessed 30 March 2017]
- Dragoş-George Călin, "How to Detect and Track Object With OpenCV", 2013. [Online]. Available: <https://www.intorobotics.com/how-to-detect-and-track-object-with-opencv/>. [Accessed 4 April 2017]