

SUPER PEN

I. Abstract

Grades K-3 Abstract Template

Teachers are the main source for students to learn how to write. However the number of students is larger than the number of teachers and teachers can't be watching them all the time, like when doing homework or distance learning. The SUPER PEN is an intelligent pen design by kids for kids. The Super Pen will teach you handwriting, help you to spell correctly, communicate with your teacher and friends without having to use special paper. It can read back your text and even help you with math.

Project Page 1

The Super pen will teach you from anywhere in the world with a hologram of your teacher!

- II. Description
 - 1. Present Technology

Grades K-3 Present Technology Section Template



Today there are pens and pencils without technology that are used by most kids at home and at school. There are older style pencils that need to be sharpened and have an eraser and there are mechanical pencils that you click for lead. Most of the pens and pencils are manual and can write and erase only. There are some smartpens made for adults and a few made for kids. The pen with technology made for kids usually need special paper learning cards or books to work.

Project Page

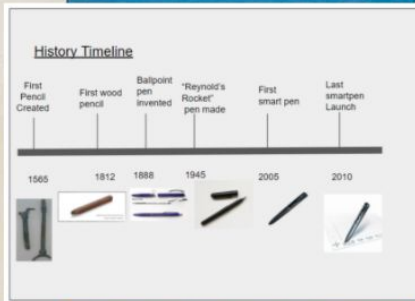
Grades K-3 Present Technology Section Template

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Landscape or
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Features of the smartpens
that are available today are: internal
memory Recording speakers
microphone, infrared camera, translation,
calculator and transferring of notes to
digital. There is not a pen on that
market today that includes hologram
and artificial intelligence made for
kids.

2. History of the Technology

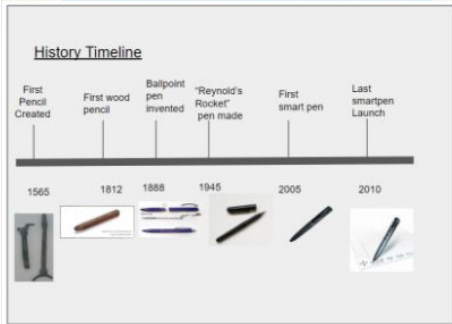
Grades K-3 History Section Template



The pencil was created after a graphite deposit was discovered in Borrowdale, England (1564). Until 1662 some companies started to produce larger amounts of pencils in Germany. Because a war Germany told France and USA we are not going to sell you more pencils.

So Nicolas-Jacques Conte (1795) from France, **Project Page 3** mixed graphite with clay. In 1812 the American William Monroe made the first wood pencil.

Grades K-3 History Section Template



The Pen that is most often used today is called a ballpoint pen and was first invented in 1888 by John Loud.

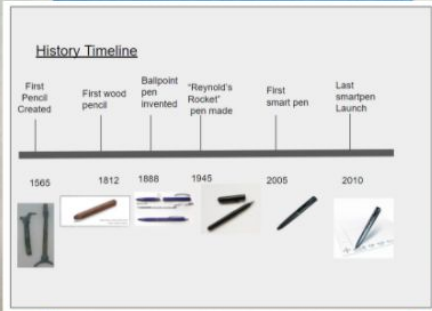
Before the ballpoint pen there was dip pen, an ink brush, a quill or a reed pen that people used to write with.

All of these pens that came before the ballpoint pen had some problems, some of the problems were the

Project Page 3

time it took for the ink to dry the types of surfaces that the pens could write on and leaking ink. Laszlo Biro and then Milton Reynolds improved the design and

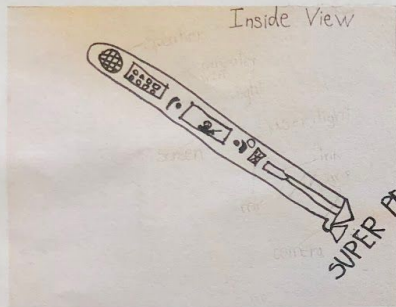
Grades K-3 History Section Template



made the pen better. In 1945 Milton made the Reynolds Rocket pen that was very popular and after that the Bic and Papermate pens we have today were made. In 2005, Jim Margraff developed the first smartpen after creating Livescribe. The last smartpen was in 2010

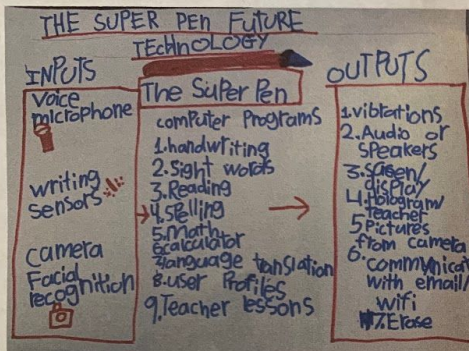
3. Future Technology

Grades K-3 Future Technology Template - 1



The Super pen will use artificial intelligence to tailor the learning process of each kid. It will also use holograms and face recognition to interact with your teacher. Using Voice recognition the Super pen will assist you with your work. Through haptic sensors the Super Pen will vibrate to correct your handwriting and spelling. It will also use a camera and a wifi to send your work to the cloud.

Grades K-3 Future Technology Template – 2 (optional)



The Super Pen will take in information through these inputs: audio and voice through the microphone, writing or text through sensors and will identify the user of the Pen through facial recognition using a camera. The Super Pen will use artificial intelligence and have computer programs that provide detailed instructions on how to do all of the Pen tasks or capabilities. Outputs of the Pen are vibrations, audio, screen display, hologram of a teacher, erasing and the ability to send notes or pictures via email.

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Grades K-3 Future Technology Template – 3 (optional)



You will be able to talk to the Super Pen to ask it to do things or help you. The Pen will talk back to you, vibrate or show things on the screen. The Pen will be able to track what you are writing with sensors and will know who is using it through the camera and facial recognition. The Pen will project your teacher as a hologram.

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The Super Pen will use Thermochromic ink that can erase with friction.

4. Breakthroughs

Grades K-3 Breakthroughs Template - 1

Insert drawing here
Landscape or
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From the current technologies the Super Pen will need advancements in nanotechnology because the computer should be small enough to fit inside a regular size pen but with a big capacity to perform AI. Holograms also need more development so that it can

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Grades K-3 Breakthroughs Template - 2 (optional)

Insert drawing here
Landscape or
Portrait Image
Orientation is
accepted

be activated by voice, used without any special devices, and be able to see it from different angles. More developments are needed to make holograms interact with the user by making it intelligent.

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Grades K-3 Breakthroughs Template – 2 (optional)

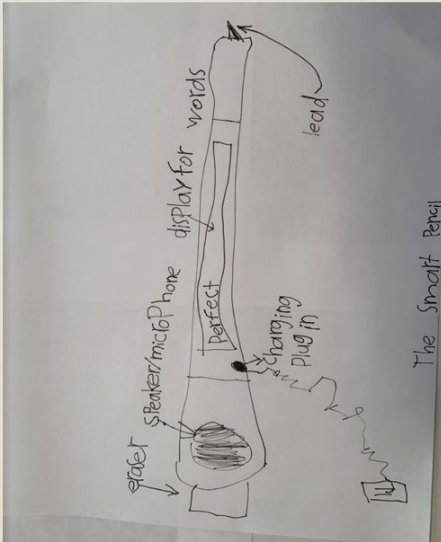


We learned about holograms through research and watching a Bill Nye video. We ran an experiment to make our own holograms at home. The holograms we made was amazing but also small. The Super Pen holograms of our teacher needs to be bigger and should be able to interact with the user of the Pen. We would need to run a similar experiment to make a larger hologram that has interact through artificial intelligence.

Project Page

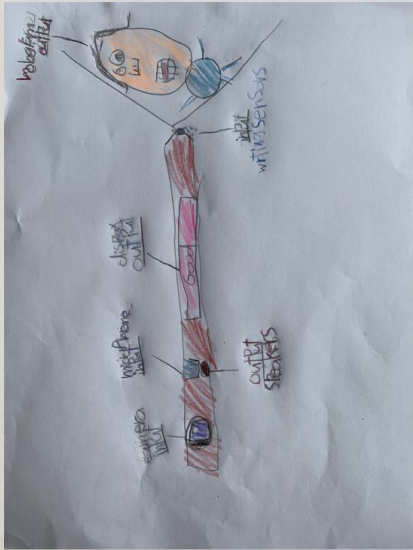
6. Design Process

Grades K-3 Design Process Template – 1



We changed and added some features and technologies as we worked on the design of the Super Pen. From the original drawing we added wifi, a camera and haptic sensors so the pen could do what we planned. We also added holograms to make the pen more interactive and user profiles using

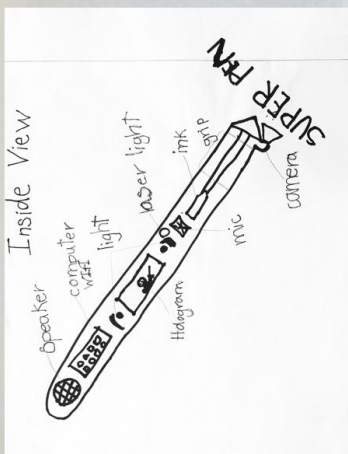
Grades K-3 Design Process Template – 2 (optional)



face recognition to allow more than one person to use the pen. We also gave it the ability to change the grip. We decided to change graphite for erasable ink because it won't leave crumbles and text won't blur. We learned that haptics technology is important for the super pen because

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Grades K-3 Design Process Template – 3 (optional)



it allows real time feedback effects by touch. It also helps to feel if you combine holograms with sensors.

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6. Consequences

Grades K-3 Consequences Template

Insert drawing here
Landscape or
Portrait Image
Orientation is
accepted

The Super pen will create
a new way to learn and
research from anywhere you are
and make learning more personalized
and social for kids. The Super pen
could make kids not want to go
to school in person. It also
may not be available to all
kids because of the cost.

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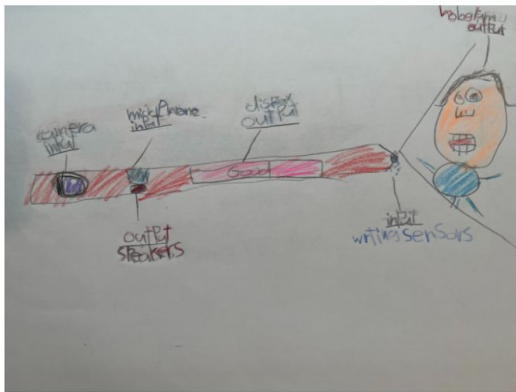
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IV. Web Pages

Page 1



The SUPER PEN is an intelligent pen design by kids for kids. The SUPER PEN will teach you from anywhere in the world with a hologram of your teacher.



A video of our team describing how the Super Pen works.



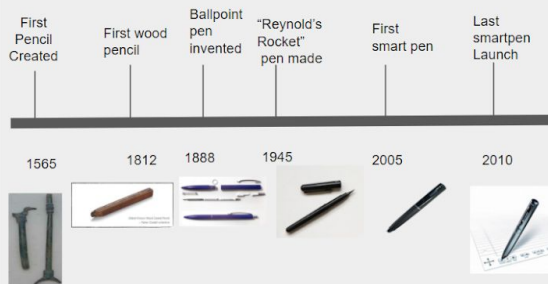
Page 2



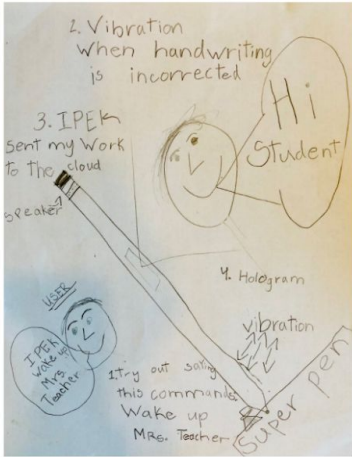
The latest technology in pens only allow them to be smart. Some of its features are: transfer notes from a special pad to the cloud, record the meeting while you use the pen, sound out loud words from special books, translate and also have calculator.

Our Super Pen is different to the rest of the pens because it uses AI and is capable of projecting holograms.

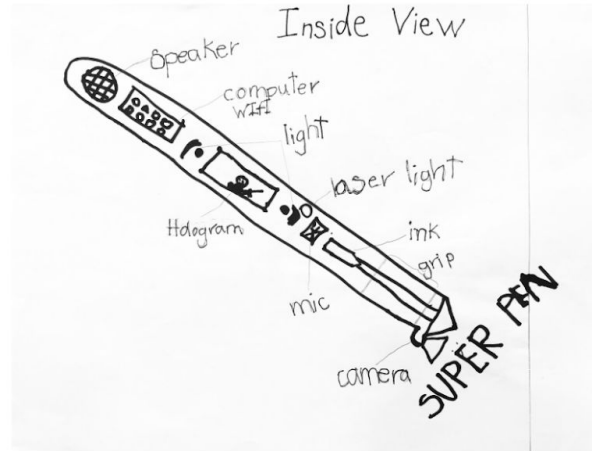
History Timeline



Click on the pen to see the pen in action.



Learn how the pen technology works. You can click on the features to learn more.



Breakthrough Summary

Advancements in *Nanotechnology* so that the computer and all the technologies can exist pen.

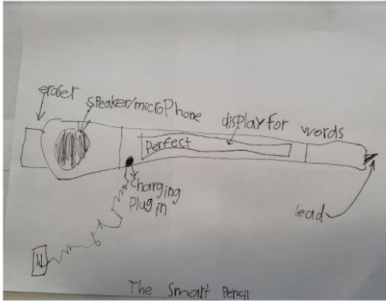
Advancements in *Artificial Intelligence* and link to the *Hologram* to make more interactive and intelligent.

Breakthrough Study / Experiment



Click on the image to watch a video of how our team made a hologram and explain how we test our pen.

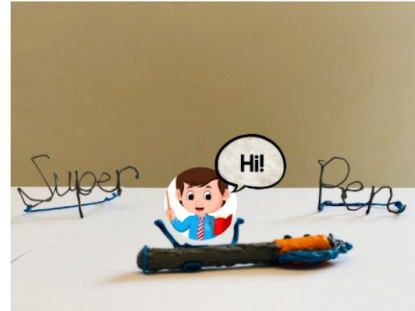
First Version



Design Process

- Changed lead to erasable ink
- Added a hologram
- Added haptic sensors
- Added artificial intelligence

Final Version



Design Process Explained
If you click on an arrow we will explain why we added in this box.