**Fire Alarm Engineering Requirements**

The fire alarm that will be designed will give a clearer indication as to where to go during a fire. For this system to work each alarm will be connected to each other and will be able to send and receive signals. This system will be mapped to the floor plan of the building, so that when a fire breaks out the alarm system will recognize where the fire is coming from and send out a signal to each alarm to light the LEDs in the direction people should go to get away from the fire.

1. Smoke sensors

Smoke sensor will be used to detect smoke within the building, there are different types of smoke sensors to detect fast flaming fires and slow smoldering fires. Upon more research we will be decided which would be best for us to use within our fire alarm.

1. Transmitter and receiver

For this fire alarm system, we want to make sure to direct the people away from the fire and to the closest exit. For this to work we will need each alarm device to be connected to each other. So each separate alarm will have a transmitter and a receiver so that way each alarm would be able to communicate to each other, and send the correct signal.

1. Software

For the fire alarm system to be successful we will be using a script language to program the devices to recognize the layout of the building, and to be able to set off the sequence as to where to go when one of the smoke sensors go off.

1. Battery

For the fire alarm system, it will be using a 9v battery with 1200 mAh current, due to some research on current fire alarm systems and the profession grade batteries they use.

1. Lights

To help with the indication of a fire, and to help direct people in the right direction away from the fire there will be two LEDS in the shape of arrows on the fire alarm. Depending on the signal that is sent out, one of the arrows would illuminate in the direction to go. This will help give a clearer indication as to where the fire maybe and where to go.

**Teaching Assistant Engin7eering Requirements**

The teaching assistant will be used to help kids learn their numbers, the alphabet, languages, math, etc by using speech recognition. With this tool the teachers would be able to monitor and analyze the data received from this device and shall be able to adjust their teaching style to address the trouble areas monitor by this device.

1. Speech recognition software

The teaching assistant device will be capable of Speech recognition software to detect the response of the user. With the speech recognition software being capable to collect the users’ response allows the device to analyze the data collect and check if the spoken answer was correct or incorrect. Being able to detect the if the correct answer was spoken or not will decided whether the program can move on to the next step.

1. User interface

For the teaching assistant a user interface will be designed so the users can have the appropriate interaction with the device. The user interface will not be too advance so that kids would be able to use it with ease.

1. LCD screen

A LCD screen will be used for the teaching assistant device. LCD screens have a wide range of brightness, which will produce bright images. This is very suitable to environments that are brightly lit, like class rooms, so the kids using it will be able to see the images clearer due to the anti-glare technology. The LCD screen is also light weight which will help with the portability aspect of this device. Also LCDs produce low electricity, so this will not drain the battery of the device.

1. Battery

For the teaching assistant it will be using a 5V rechargeable battery, and this conclusion was due to researching of other kid edition tablet devices.

1. Microphone

A microphone will be incorporated in the teaching assistant for the speech recognition aspect of this device. The microphone will be low cost which is great for the cost of production, and would be uncomplicated to install into the device.

**House of Quality**

Fire Alarm



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Teaching Assistant

