

SMART BOOK

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Abstract: A device designed for children which helps them learn alphabets and numerical and makes them habituate to digital techniques is being presented in the paper. Children under the age group of 3 to 5 may not show interest in the present conventional system of learning and teaching methods and may not focus. To advance the existing methods we propose an approach “SMART BOOK” which helps them learn in a passionate way. Here they can trace alpha numeric’s on a touch panel under which the lcd board is placed, where the alpha numeric’s are displayed. The data taken from touch panel is fed to MSP430 microprocessor, which is pre-programmed using Energia software tool. Then the required audible message is chosen from APR9600 voice module and the voice is heard through speaker. An organic LED is used to display image of the object displayed on the lcd board, on tracing they will find easy way to write and pronounce through the inbuilt speaker. So, those children can grab the content very effectively.

Index Terms - Smart book, Alpha numeric’s, Touch panel, MSP430.

I. INTRODUCTION

Now a day’s INDIA is becoming digitalized country, and technology has been increasing day by day. So, the children at the age group of 3 to 5 years are fascinated towards the electronic gadgets, so the smart book will help them in learning the Alpha-numeric’s in a more fun way. The parents who are busy with their works and cannot spend time to nurture their kids and parents whose kids are troubling them can adopt this, because it looks like a gadget and attracts kids and also helps them in learning. As literacy rate in India is not cent percent, the kids whose parents are illiterate can adopt this. As Scribbling pad is already available in the market where we can scribble like book it can’t help them with learning, we can only use scribbling pad to write or draw just like a note book. Where as in our smart book they can follow the sequential pattern of both the alphabets and numeric’s. The scribbling pad does not consist of any speaker, where as in smart book we have the inbuilt speaker which helps in learning how to pronounce the alpha numeric’s.

II. EXISTING TECHNOLOGY

Scribbling pad is already available in the market where in we can scribble like book. This design is available in the form of Product, but it doesn’t help the children with learning anything new they can only scribble what they know. There are some software tools available in android and iOS platform which serves this purpose, the existing design is available with one application of pressing the letters and no different modes of operation.

III. PROBLEMS IN THE EXISTING DESIGN

The scribbling pad does not consist of any additional speaker, where as in the Smart Book we have the inbuilt speaker to pronounce the alpha numerical characters. Only single mode of operation, bulk in size, design complexity.

IV. PROPOSED DESIGN

In the proposed design we have three different modes of operation, first is learning mode where children learns the alpha-numeric’s, second one is recognition mode for which OLED is used and finally the testing case.

V. WORKING PRINCIPLE AND OPERATION

The narrative approach has advanced notability like changing the mode of operations of learning mode, sequential mode and testing mode. During first mode, LED showcases the alphanumeric, where ever the figure touches the touch panel. Therefore we can familiarize the kids to learn by themselves by hearing the phonic sounds. During sequential mode even though when the kid touches anywhere on the touch panel the alphanumeric will be displayed in the sequential order and the phonic sound is heard. During the test mode kid can be tested by their parents or by teachers. Initially characters will not be displaced, but when the kid touches the touch panel the character is displayed and the phonic sound is not heard in this mode.

Block Diagram

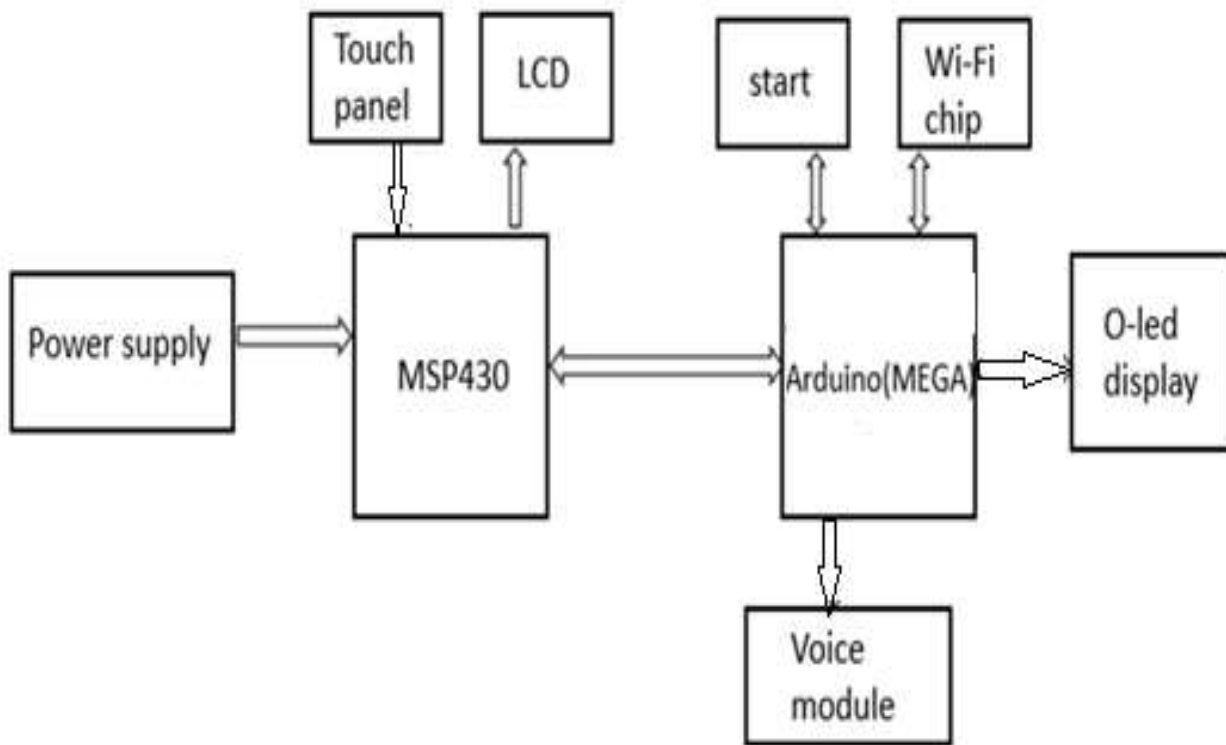


Fig 1: Block Diagram

This smart book provides the awareness among the children and will habituate to the technology. As it is a touch screen based learning it is easy to learn the alpha numerics. For all the three modes of operations the module is interfaced with speaker, where we can hear the sounds of alpha numerics. As we are having three modes of operations in this technology the three modes (learning mode, recognition mode and text mode) can be changed according to the user. To increase the literacy rate in India and it leads to the “Make In India”. By using this technology kids can hear the phonic sounds and can recognize the alphanumeric characters. Service addressable market for our products is the kids declining under the age group of 3 to 5 years to increase the literacy rate of India.

- 1) Customer Need Identification: The kids who are at the initial stage of learning (3 to 5 years) and those whose parents are illiterate can adopt this Smart Book. Now-a-days, as both the parents are busy in their work and cannot spare time to nurture their kids. As the literacy rate of India is not cent percent, the kids whose parents are illiterate can adopt this.
- 2) Serviceable Addressable Market (SAM) Identification & Justification: The Serviceable Addressable Market for our product is the kids falling under the age of 3 to 5 to increase the literacy rate of India to step towards “Make In India”.
- 3) Distribution Channel Identification: This product is mainly centered on the kids under the age of 3 to 5 mainly to increase, the literacy rate in an interesting and playful way. So we will be conducting workshop to create awareness in government aided schools, government organizations.

Flow Chart

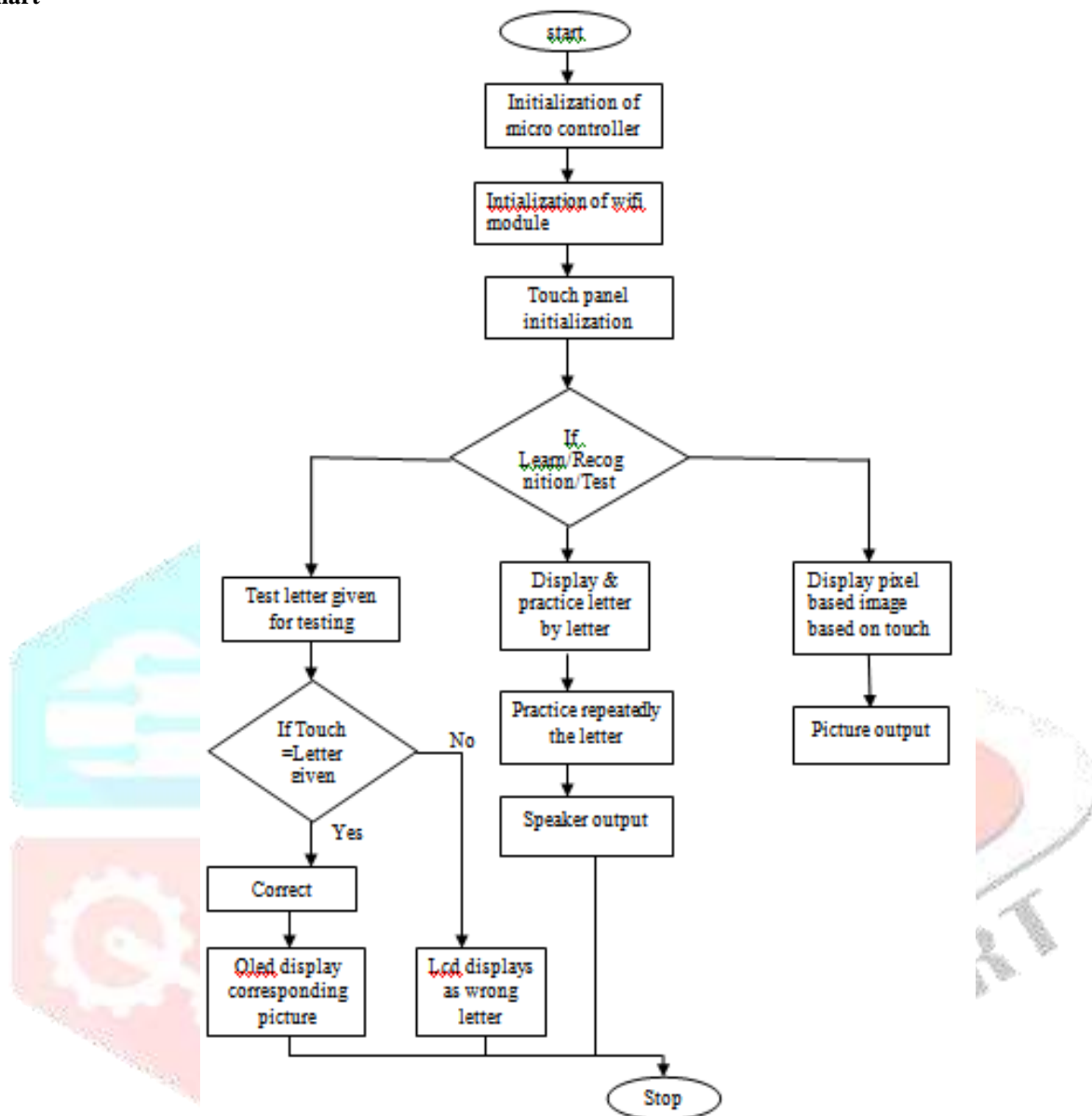


Fig 2: Flow Chart

Schematic Diagram

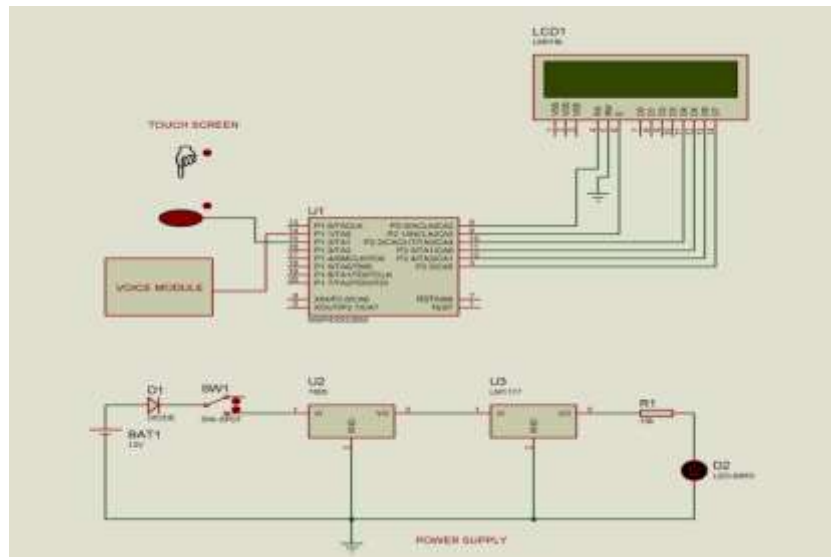


Fig3: Schematic Diagram

IV. RESULTS AND DISCUSSION

After the whole project is done, the followed results were recorded when experimented. The MSP430 microcontroller was programmed, so that for different input values, there would be different outputs.



Fig 4:Smart book

This the hardware component of Smart Book which is in off state. This kit is build according to the connections arranged in the block diagram.



Fig 5:Smart Book is ON

This is the ON state of the component, Where a letter is touched on the touch panel then letter and respective word of that letter will be displayed on the lcd.



Fig 6:Test mode ON

This is the test case where the students are able to test in this module, Initially a letter is given by another person then the student need to identify the correct answer.



Fig 7:If Test mode is successful

In this case when student enters the correct letter then the letter and respective word will be displayed and according to that image is also displayed through OLED.

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Mr T.Vasudeva Reddy working as a associate professor in the department of ECE,BVRIT,Narsapur, Medak(dt) since 2009 and guided more than 60 batches of U.G students and 20 P.G .currently pursuing Phd in the area of low power vlsi design.His area of interests are memory optimization using low power design techniques and wireless sensor networks .

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