

ClockAide



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Advisor: Professor Soules, Professor Leonard (Spring '13)

Department of Electrical and Computer Engineering

Presentation Outline

- Goals
- Changes from Fall '12
- Deliverables
- Design
- Prototype
- Updated Cost and Budget

Goals of ClockAide

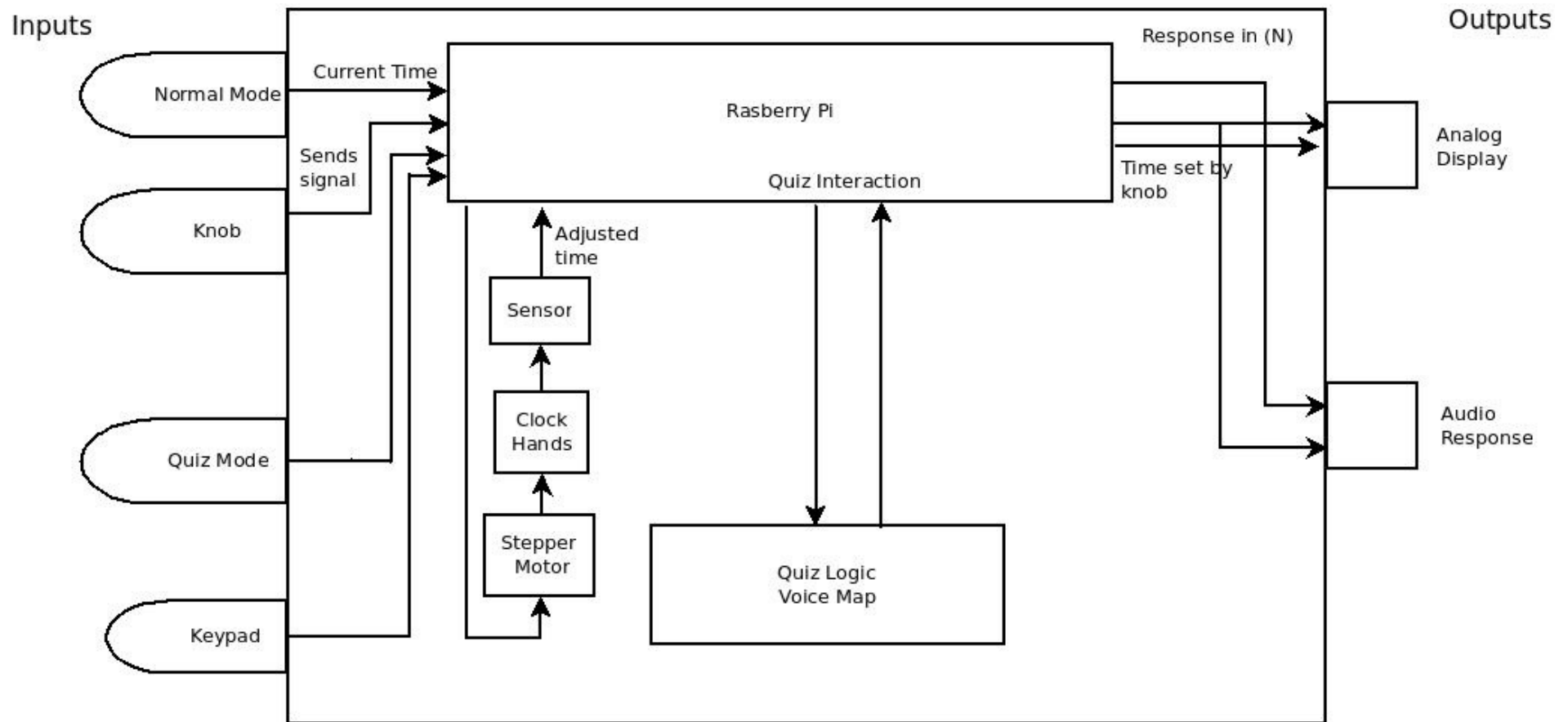
- Create an educational learning tool for special needs students at West Springfield Middle School
- Relieve burden of repetition on the teacher
- Solve two problems stated by Megan Ferrari
 - Independently learn how to tell time
 - Entering ID numbers for lunch

Changes from Fall '12







- Transition from Arduino to Raspberry Pi Prototype
 - Full fledged computer running Linux
 - High performance



Block Diagram – Raspberry Pi



CDR Deliverables at MDR

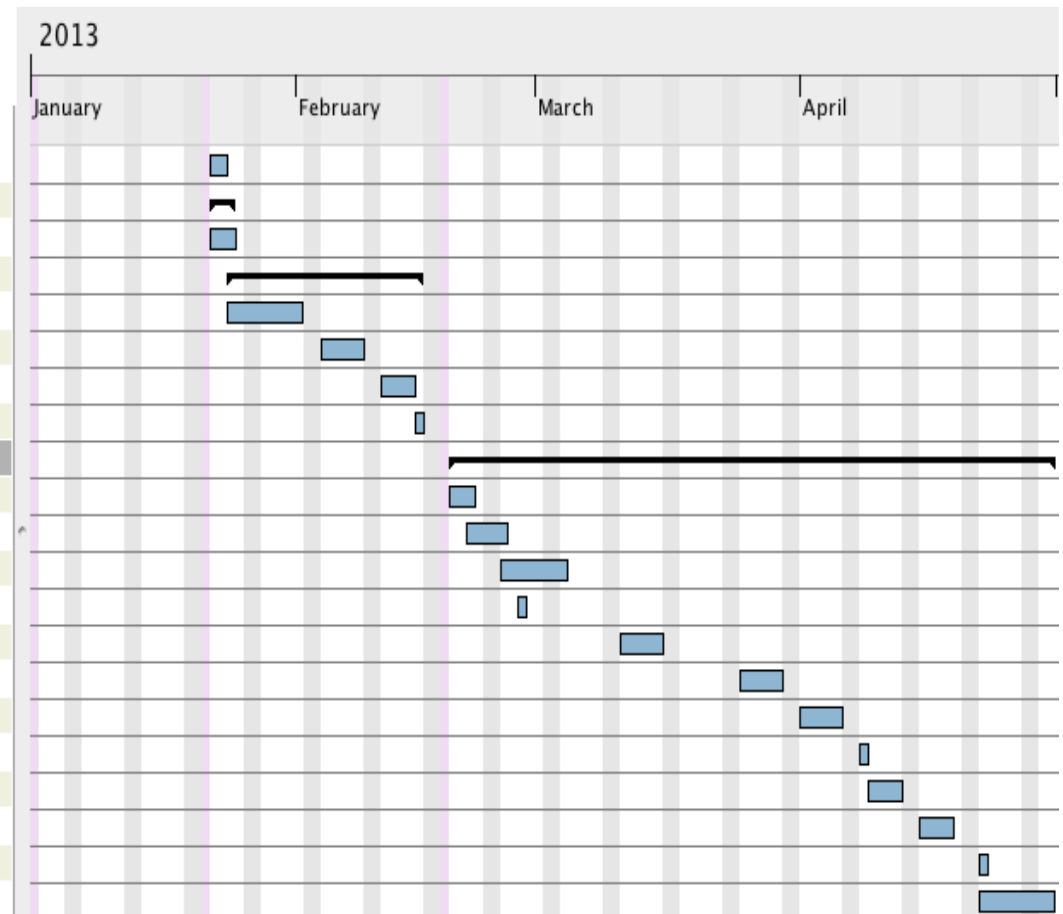
What we promised	What we delivered
Components working together 	Type a time on the keypad, see it on the display, stepper motors will move to the position 
Quiz Modes 1 and 2 	“Read Mode” 
Normal mode will speak the current time 	Voice Mapping integrated with Raspberry Pi 

Demo

- Keypad switching modes
- Stepper motors communicating with Pi

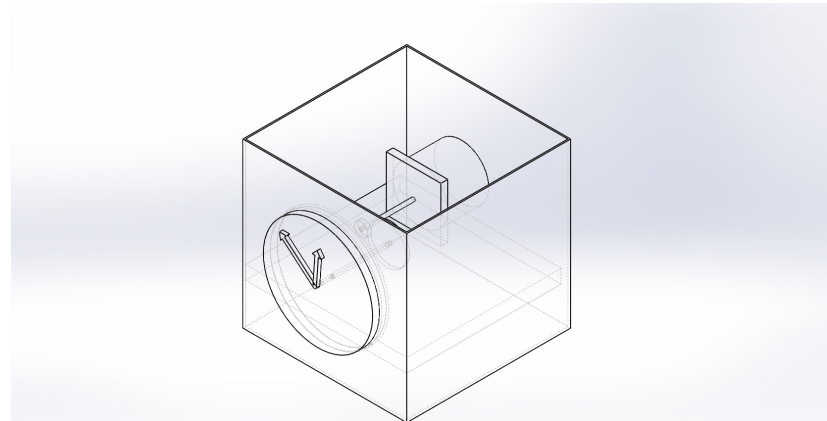
CDR - FDR Timeline

Name	Begin date	End date
• Finalize Goals for Spring	1/22/13	1/23/13
☐ • Talk to Megan Ferrari	1/22/13	1/24/13
• Update Megan on Progress	1/22/13	1/24/13
☐ • CDR Preparation	1/24/13	2/15/13
• Integrate Stepper Motors	1/24/13	2/1/13
• Integrate Arduinos via I2C	2/4/13	2/8/13
• Work on CDR Presentation	2/11/13	2/14/13
• CDR Presentation	2/15/13	2/15/13
☐ * FDR Preparation	2/19/13	4/30/13
• Address CDR Feedback	2/19/13	2/21/13
• Order Parts for Case	2/21/13	2/25/13
• Design Case	2/25/13	3/4/13
• Send Order to Fabricate Board	2/27/13	2/27/13
• Integrate all final components	3/11/13	3/15/13
• Finalize product into case	3/25/13	3/29/13
• Test Product	4/1/13	4/5/13
• Deliver Product to Client	4/8/13	4/8/13
• Gather Feedback from Client	4/9/13	4/12/13
• Prepare for SDP Day	4/15/13	4/18/13
• Work on FDR Presentation	4/22/13	4/22/13
• Write Final Paper	4/22/13	4/30/13



Deliverables for FDR

- Casing ordered and built
- All software and hardware components complete
- All Three Modes working
- Entire device integrated within casing
- Instruction Manual



Updated Cost & Budget

Current

8GB SD cards (2)	\$12.38
Arduino MP3 Shield	\$39.95
Raspberry Pi	\$69.85
RTC	\$21.73
LCD Screens (2)	\$27.90
Gears +Piping	\$20.00
Subtotal	\$191.81
Shipping	\$38.90
Total	\$230.71
Percentage	53.85%

Projected

Item	Description	Price
Stepper Motors	Smaller motors (5V)	\$100
Casing	Enclosure	\$150
PCB	Custom Circuit Board	\$60
Gears	Hardware to control hands	\$25
	Total	\$335
	Aggregate Total	\$546
	Overage	(\$46)

Questions?

