

2/17/11

2/18/11

- Nermin worked on CAD models
- Martin tried trouble-shooting tuner in acoustic guitar
 - issue is that it is picking up false signals or is picking up no signal
- Tried coming up with solutions, non worked
- Set up meeting with Carl for Saturday

at jack

176

2/19 • Met With Carl

- Demonstrated Prototype
• Reduced Volume = more stable tuning

- Used Oscilloscope

• Very tiny signal

- Might be picking up just from mic?

- Rewired, found being picked up via microphone

- Tried taking out mic, caused issue with picking up sound

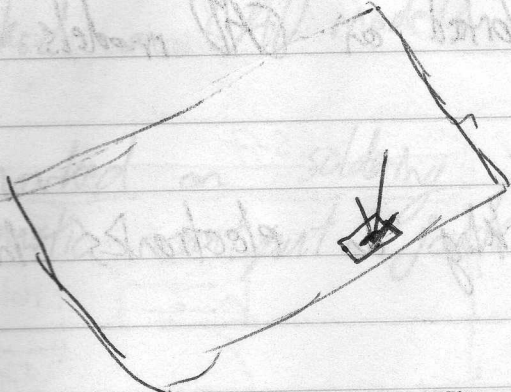
- Output Jack has a switch, needs plugged in wire

Schematic

2/23/11

1/20/11

Normal Workshop on IDE for Java Developers



Java Eclipse IDE for Java Developers
 Providing



me?

plugged

2/22/11

- Nermi Worked on CAD models

- Began working on electronics inside guitar

- Tried taking out mic, caused issue with picking up sound

- Output jack has a switch, needs plugged in order

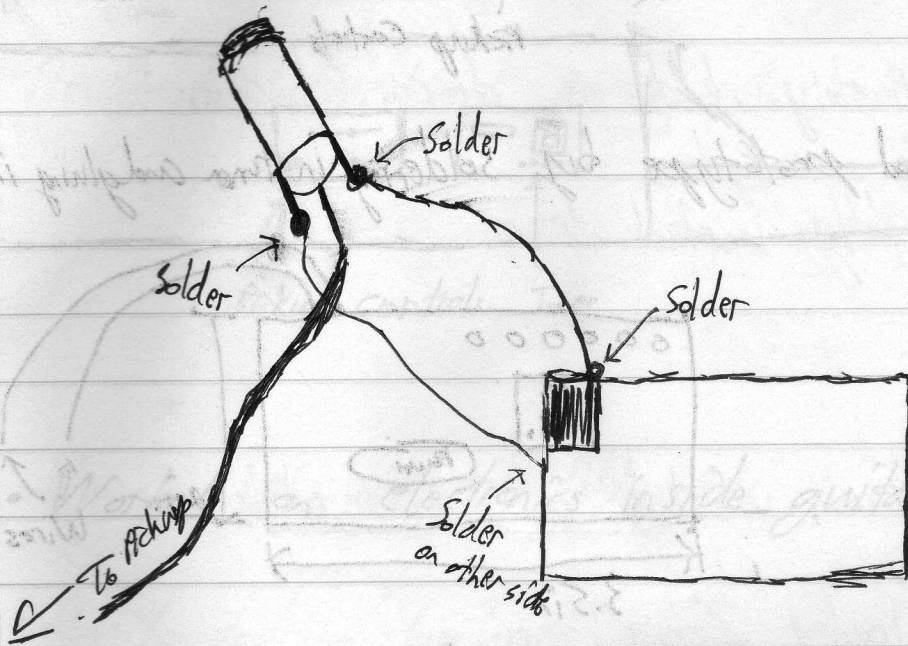
Schematic

1/22/11

2/23/11

• Norman Worked on CAD models

• Martin worked on soldering tuner to electric-acoustic output jack



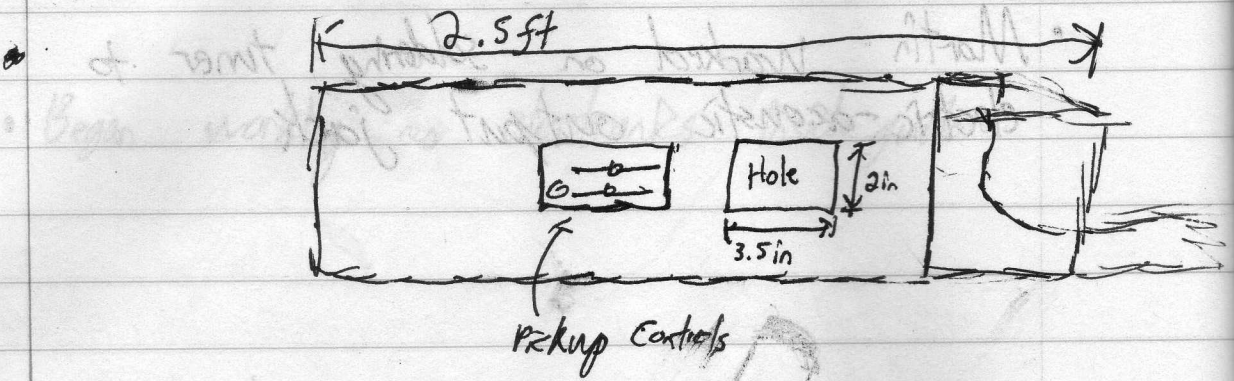
• Begon Sold wiring tuner in place

• Norman worked on CAD models

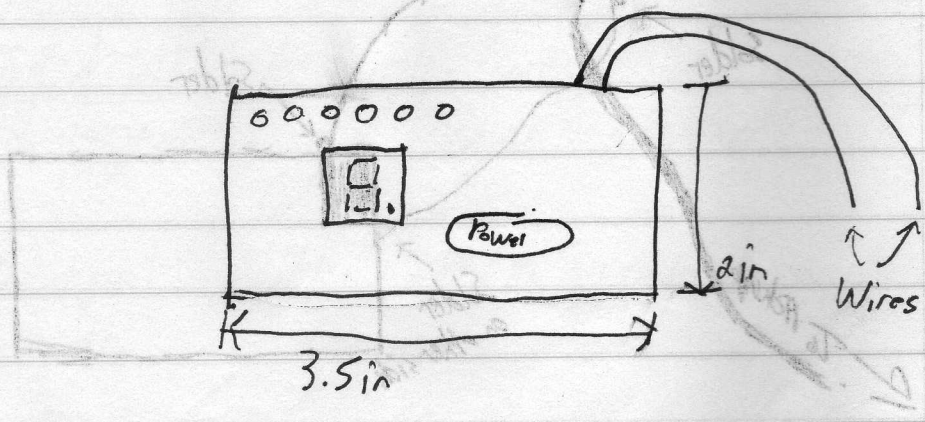
• Norman worked on CAD models

2/25/11

- Cut hole to hold tuner using ~~sub~~ saw



- Finished prototype by soldering in tuner and gluing in case



- Began Soldering tuner in place

- Normin worked on CAD models

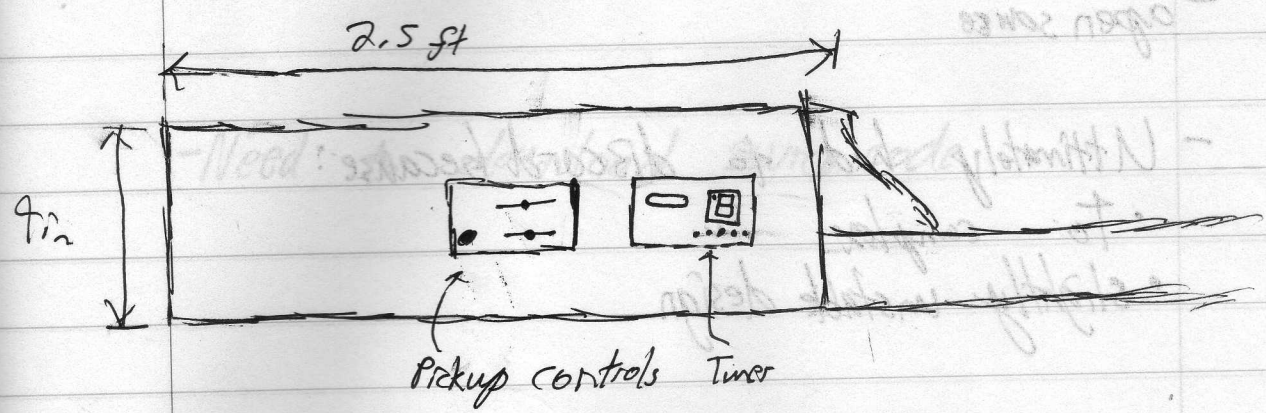
2/25/11

11/18

105

2/28/11

- Finished prototype
 - Soldered tuner to output jack with stronger solder
 - Placed case and components into hole with more tape and hot glue



- Worked on electronics inside guitar with Martin

- Nermin worked on CAD models

- Worked with Tartini Tuner Software

- Software good

- open source

- Ultimately had to discard because:

- too complex
- slightly unstable design

- Nermin worked on CAD models

- Downloaded Zebra Tuner

ZebraTuner - Cirobi's Guitar Tuner

Retrieved March 4, 2011

<http://zebratuner.sourceforge.net>

- Werke

3/2/11

- Worked with ZebraTuner
- Discovered that source code was not included in download

- Need to download source code

- Nermin Worked on CAD models
- Downloaded ZebraTuner source code

Sourceforge

Retrieved March 2, 2011

<http://sourceforge.net/projects/zebratuner/files/zebratuner-src/>

11/11

3/7/11

• Norma Worked on CAD

• Worked on Soldering and Wiring

3/18/11

3/17/11

~~11/18/11~~

• Nermin Worked on CAD

• worked on Soldering and Wiring

• Added interviews

• Added interview exhibitions

• Digitized Short

• Martin worked on design of 7-segment display

• Affected materials and structure of board

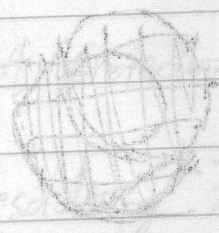
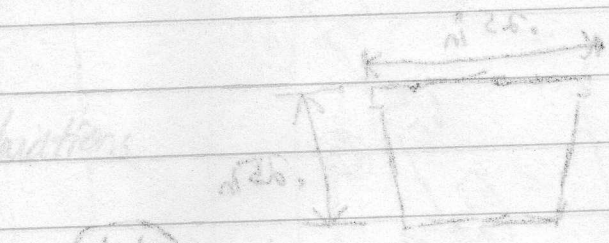
• Now ready to add strips

• Downloaded oTuner

oTuner

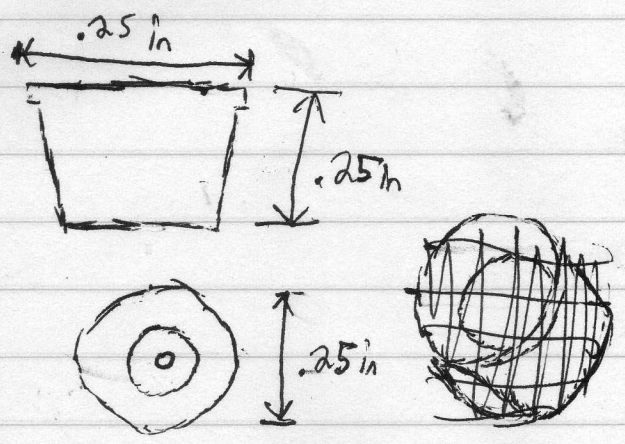
Retrieved March 10, 2011

<http://otuner.sourceforge.net>



3/9/11 ~~11/10/11~~

- Nermin worked on CAD models
- Martin and I worked to add string caps to undersideside of guitar



- had to sand holes in order for them to fit
- Now ready to add strings.

3/10/11

- Began putting together portfolio
- Added Survey info
- Added interviews
- Added interview evaluations
- Commabilized Sheet protectors
- Martin worked on desoldering 7-segment display
- Nermin worked on CAD models.

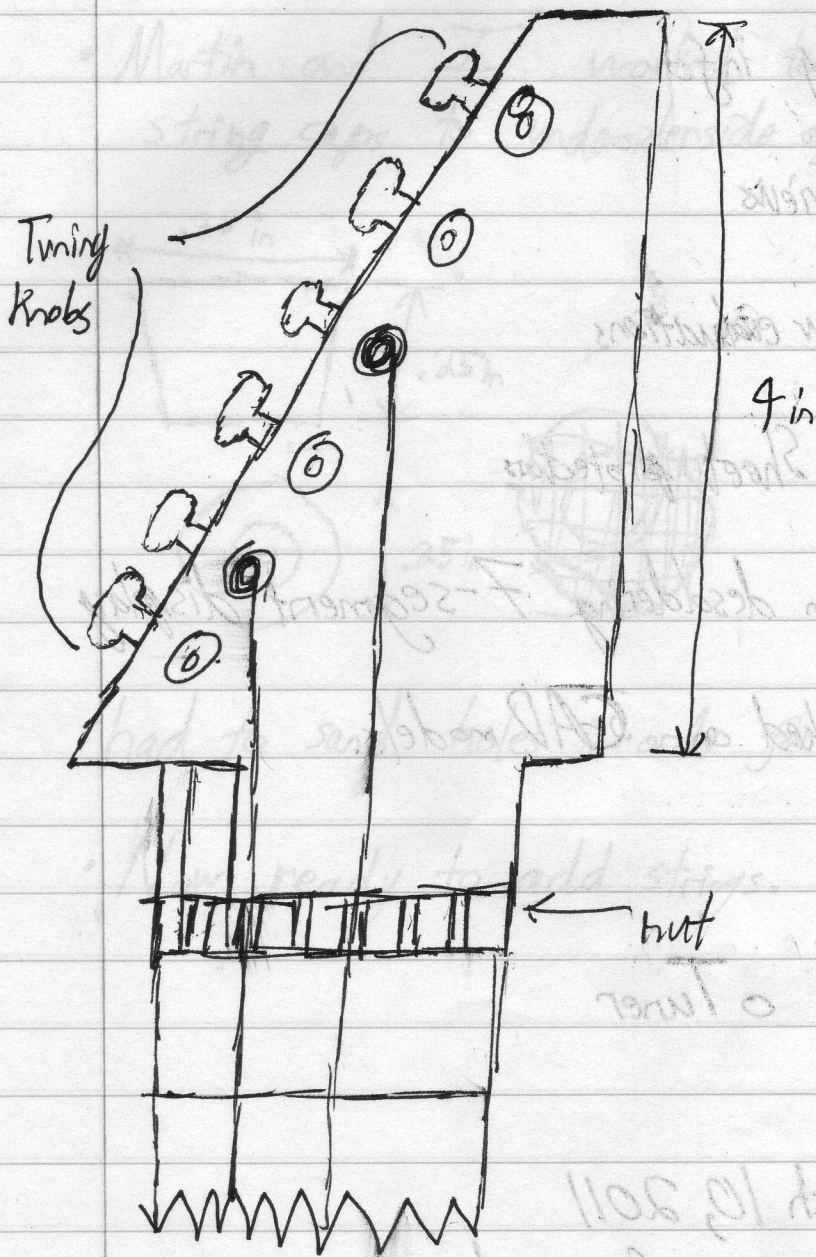
• Downloaded oTuner

oTuner

Retrieved March 10, 2011

<http://otuner.sourceforge.net>

- Wound A string and G string on guitar

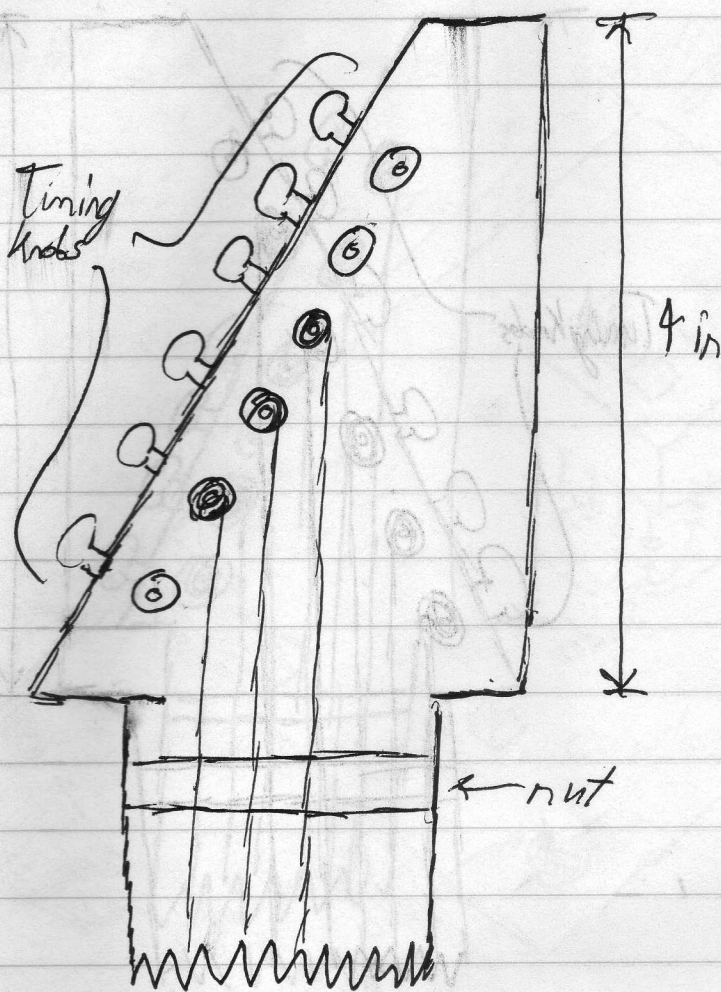


- Nermin Worked on CAD models

3/11/11

3/15/11

• Wound **D** string onto guitar



• Normin worked on CAD models of guitar

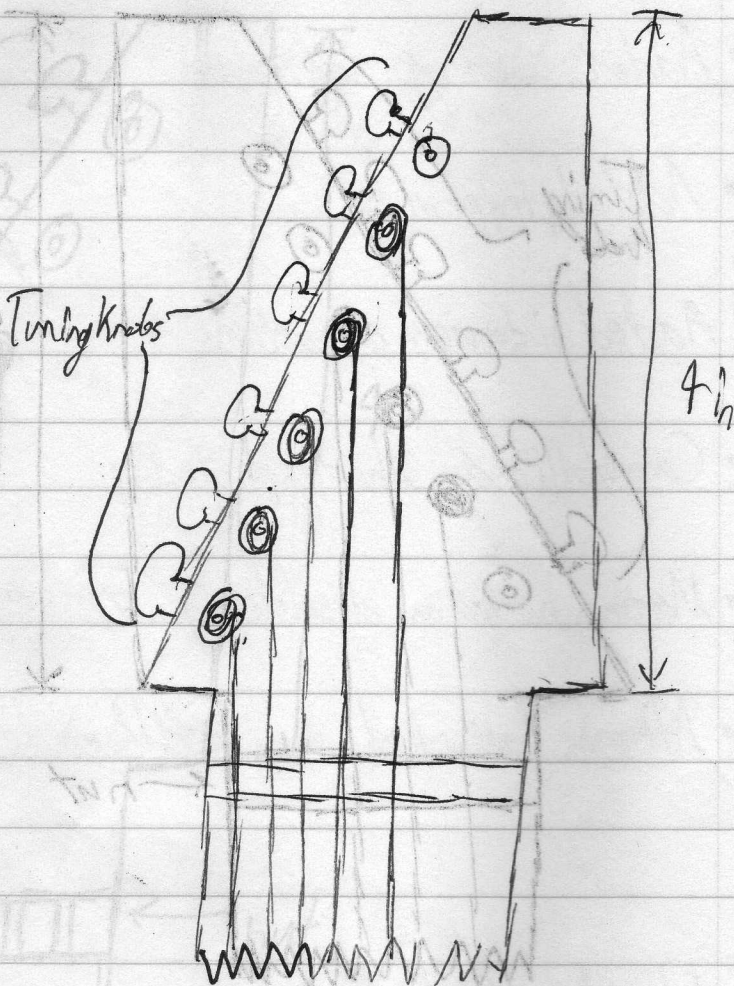
• Martin discovered F-segment display had 3 solder points

• Normin Worked on CAD models

• Worked on portfolio

3/17/11

Wound low E string onto guitar along with B string



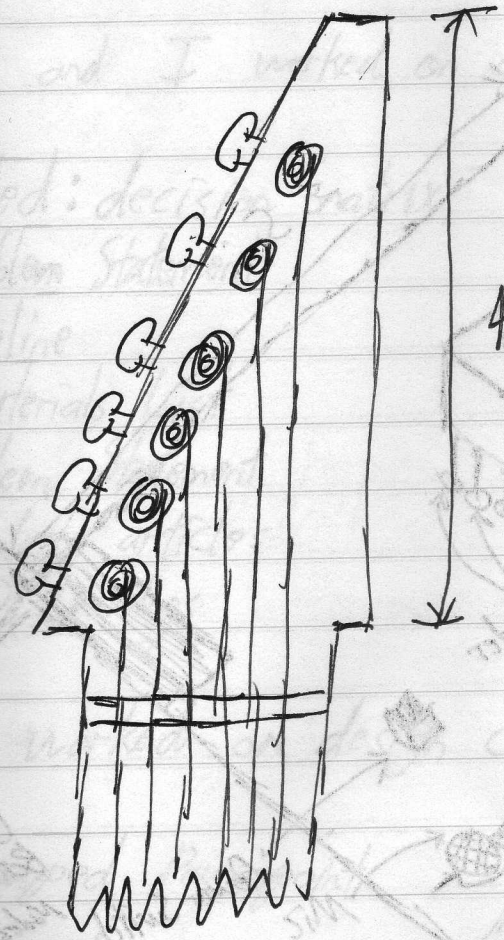
Normal Worked on CAD models

Normal Worked on CAD models

3/21/11

3/17/11

Wound high e string onto guitar



• Nermim worked on CAD models of guitar

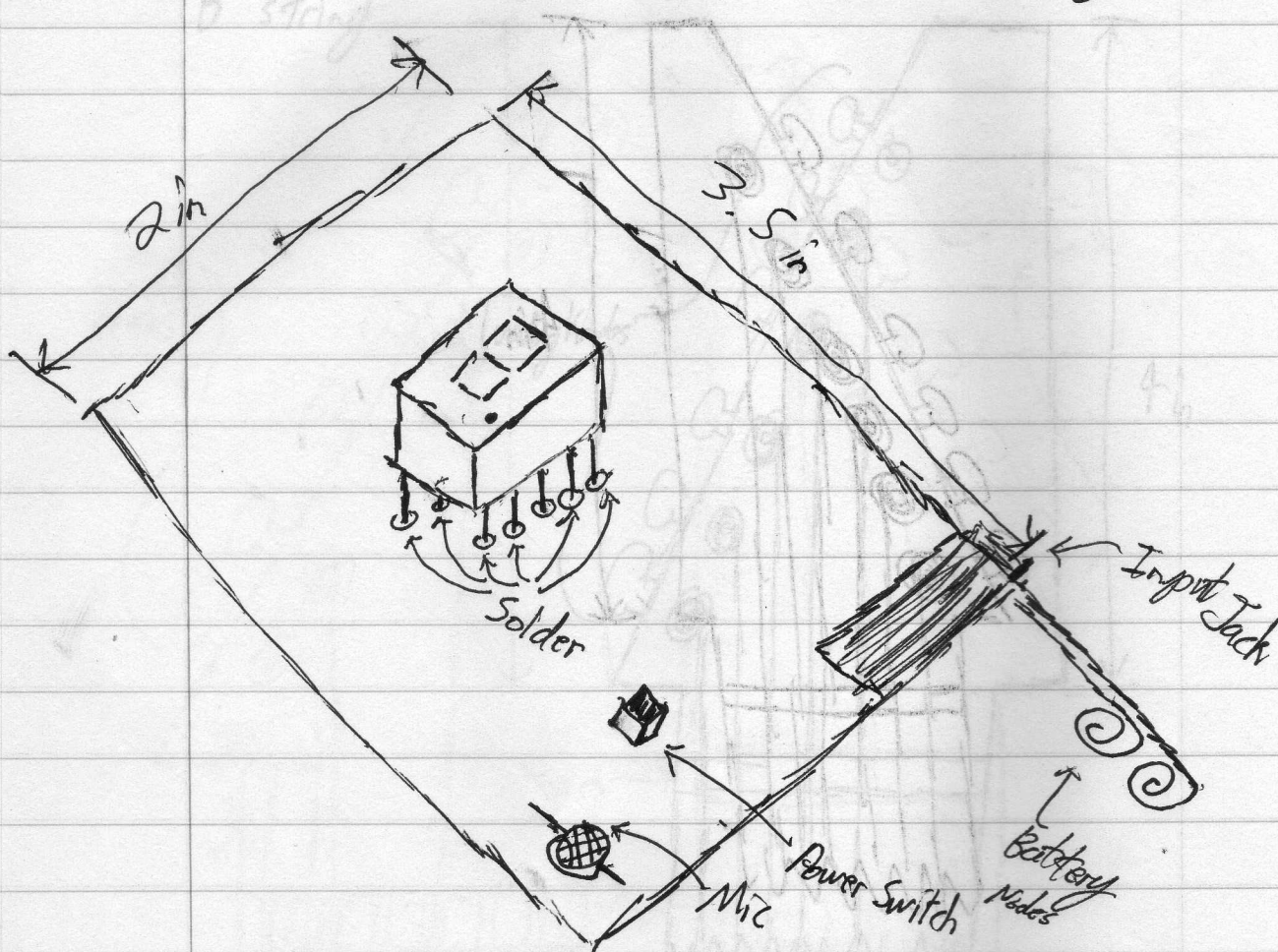
• Martin discovered 7-segment display had 3 solder points

• Worked on portfolio

11/18/11

3/22/11

- Discovered issue with 7-segment display:



- In order to remove remaining solder, circuit board would be fried. Need alternate plan. Wire and display?

- Norman worked on CAD models

- Added Brainstorming notes, Articles, planning info, to portfolio.

3/23/11

- Vermin Worked on CAD models
- Martin and I worked on adding to portfolio

- added: decision matrix

- Problem Statement
- Timeline
- Materials List
- Problem Statement
- Scholarly articles
- CAD Drawings

• Also worked on design constraints

• Revamped Powerpoint

- Downloaded JavaEclipse

Eclipse Downloads

Retrieved March 23, 2011

<http://www.eclipse.org>

3/22/11

not Jack

ould

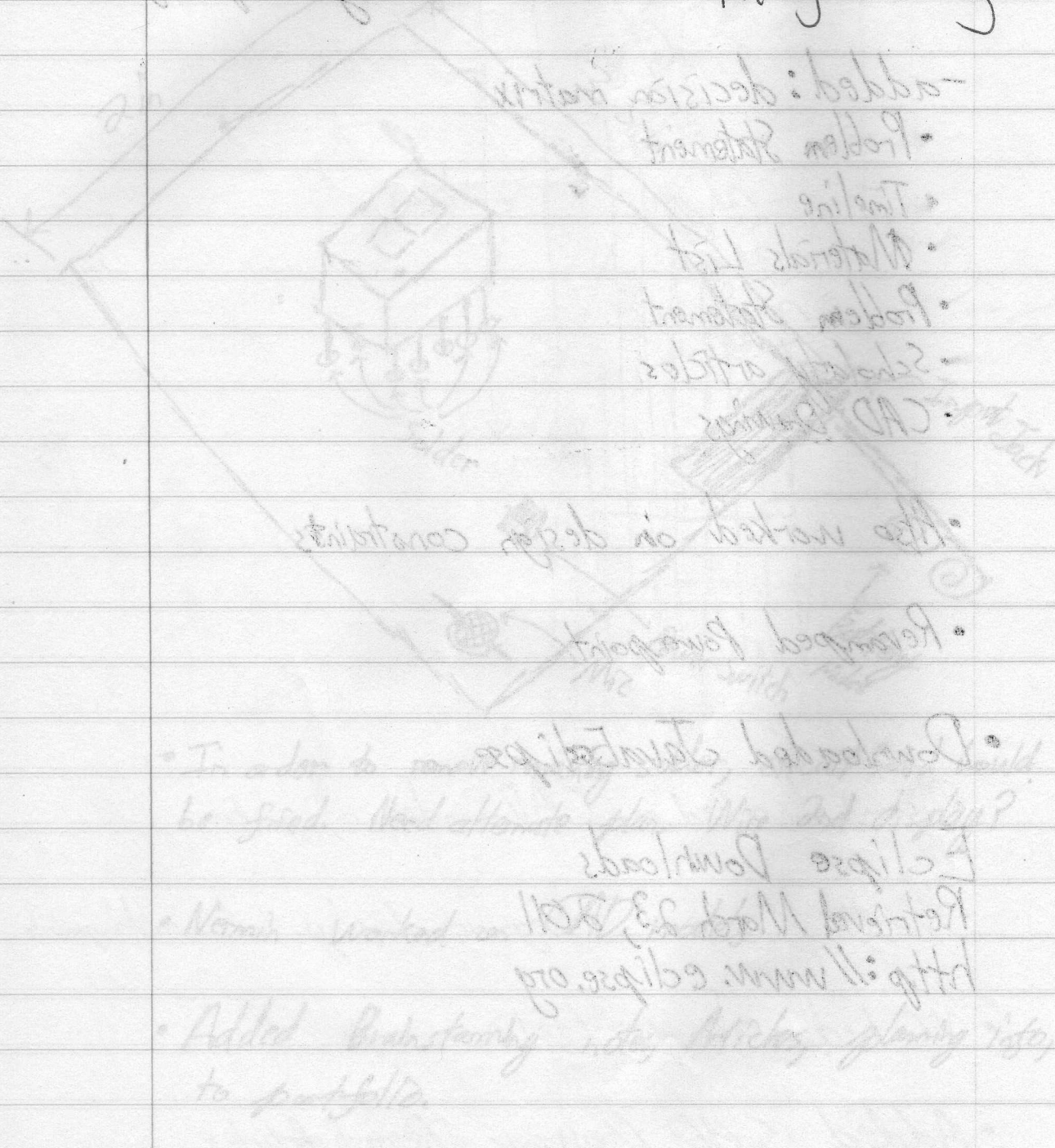
4?

info,

4/3

9:11

- Pg #100 looks a little sloppy
- Everything else looks good
- Get the bluetooth thing working

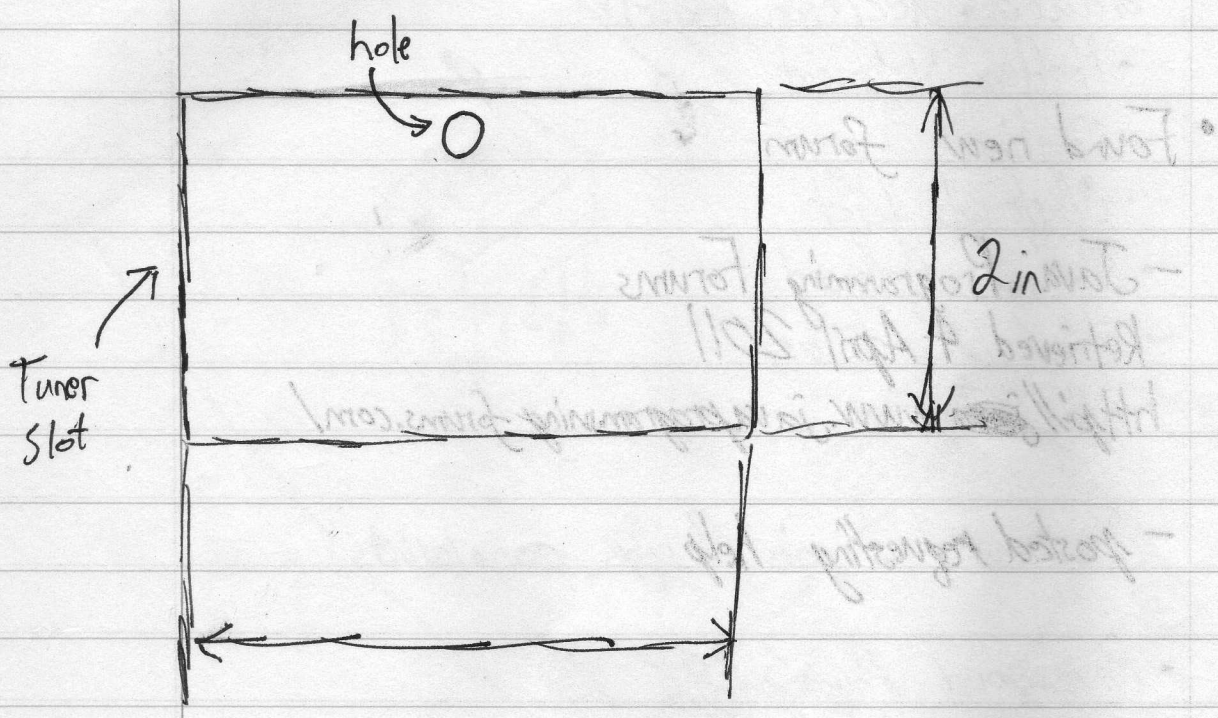


4/4/11

- Nermin worked on Inventor
- Martin and I determined need for bridge ground, hole for tuner wires
- Found new forum
 - Java Programming Forums
Retrieved 4 April 2011
<http://www.java-programming-forums.com/>
 - posted requesting help

4/5/11

- Nermin Worked on Inverter
- Martin and I drilled holes in guffar



- drilled bridge hole

4/6/11

• Nermin worked on Inventar

• Put on copper shielding on bridge ground

• Worked on tuner

• Ran wire from tuner to control bank

• Had Meeting with Mr. Hobart

- Spoke about needed for line 2 more 1170

- Retrieved 7 April 2011

- delegated Management of project to speak, reports of

- Martin to continue working on guitar, find linux solutions
Indegen for 2:00, not needed

• I am to continue working on current software

• Ordered Fret Metal at Marrell Music

• Nermin worked on Inventor software no battery install

• Worked with software

• Checked forum
- no reply's

• Found new forum

- GTN Forums
Retrieved 7 April 2011
<http://forums.oracle.com/feed/forum.jspa>

- Post plea for aid

- 1 reply at 9:00, not useful

Turn
Stat.

4/8/11

1/7/11

- Nermin Worked on Inventor
- Martin worked on 7-segment display
- Worked with software
 - having issues find way
- Had Meeting with Mr. Holmoh
 - Spoke about needed timeline
 - relegated Nermin to continuing inventor, finding text to speech, open source
 - Martin to continue working on guitar, find linux solutions
- I am to continue working on current software
- Ordered Fret Metal at Marrell Music

4/11/11

- Nermin Worked on Inventor
- Added more solder to guitar wiring
- Played with Java Eclipse
- Checked forums:
 - No new replies
- Isolated source of poor guitar feedback
 - has to do with high levels of tone.
 - Not yet sure why this is causing result.

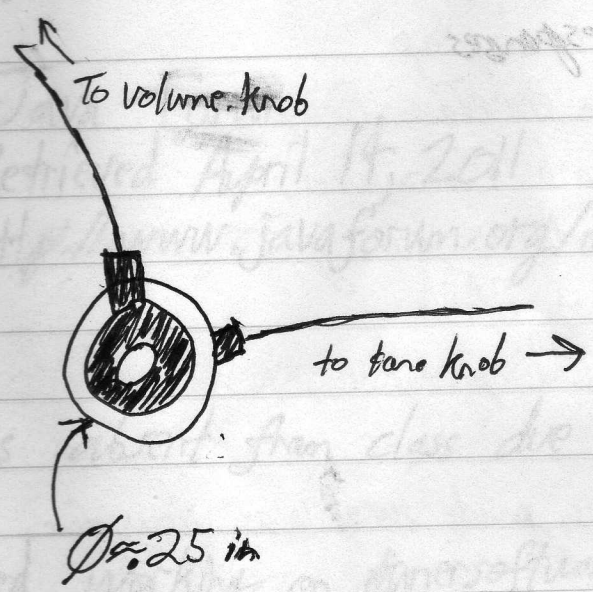
I am to continue working on current software

Ordered First Metal at Marcell Music

4/11/11

4/12/11

- Nermin Worked on Inventor
- Martin absent
 - noticed possible issue with guitar jack in reference to to the wiring
 - the hot and ground wires might be switched



- Checked forums:
 - no reply

result.

4/13/11

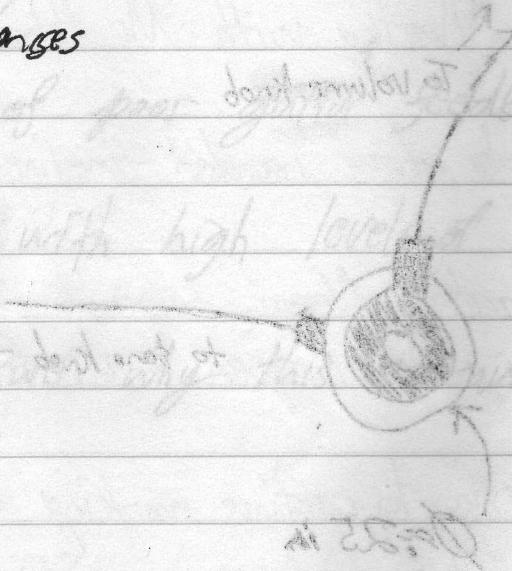
• Nermin Worked on inventor

• Martin worked on 7-segment display issue

• Was absent from class due to field trip.

• Checked forums

- no new responses



• Checked forums:

- no reply

4/14/11

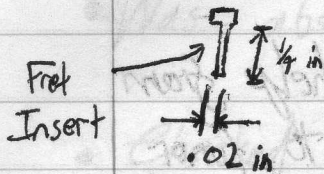
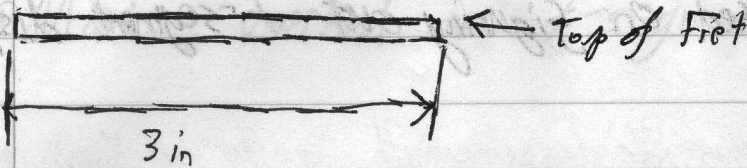
4/13/11

11/2/11

- Nermin worked on Inventor
- Martin worked on figuring out 7-segment display issue
- Posted on Java-forum requesting help from community with linking narrator to tuner software
 - Java - Forum Retrieved April 14, 2011
 - <http://www.javaforum.org/imgpe/>
- Was absent from class due to field trip
- Tried working on tunersoftware

4/15/11

- Brought in fret metal



- Nermin brought in laptop
 - Compatible with Java Eclipse
 - Compatible with Zebra Tuner
 - Also has bluetooth capability
 - Runs on 4G of RAM
 - Contains i5 intel processor
- I tested laptop, made sure was virus free
- Martin placed fret metal in fretboard
 - Needs to be cut, as there are 1 in too much per fret
 - Found that nail file does the job
- Nermin Worked on Inventor

4/15/11

20

4/18/11

- Martin absent
- Nermin worked on Inventor
- Worked on Nermin's laptop
 - Installed Java eclipse
 - Installed Zebra tuner
- Ran into issue with eclipse
 - error message
 - Eclipse having issue finding Java Run Time Environment on computer
- Checked forums, no new replies

er fret



4/19/11
S.A.

- Need to see more productivity in Blue tooth area,
- Every thing else is looking good!

- Worked on Vermin's laptop
- Installed Java eclipse
- Installed Zebra driver

- Necchi brought in laptop
- Compatible with Zebra printer
- Also has bluetooth capability
- Runs on 4GB of RAM

- Eclipse hardly ever crashing
- Environment on computer

- I tested laptop made sure was working
- Checked forums, no new replies

- Martin placed first metal in footboard
- Needs to be cut, as there are 1 in too much per foot
- Found that nail file does the job

- Vermin Worked on Inventor

4/20

- Nermin Worked on 3D model
- Martin began adding fret metal
 - Require only 23 pieces, so have 7 extra
 - Discovered many of the pieces are too long
 - Tried using ~~both~~ cutters using belt cutters, not sharp enough
 - Instead we'll use nail file to remove excess
- Worked on Nermin's laptop
 - Used text to speech App

4/21

- Nermin Worked on 3D model
- Martin Worked with Fret metal
- Worked on Nermin's laptop
 - Using TTS app, wrote files for
 - A variance, B variance, ~~⊙~~
 - A^b , $^a A$, $\#A$
 - bB , B , ~~$\#B$~~

4/22

- Normin worked on 3D model
- Martin Worked with Fretmetal
- Worked on Normin's Laptop
 - Using TTS app, wrote files for
 - C variance
 - ~~6C~~, C, #C ~~Note~~
 - D variance
 - ⁶D, D, #D
 - E variance
 - ⁶E, E, ~~6E~~

4/25

- Nermh Worked on 3D model
- Martin worked with foot metal
- Worked on Nermh's laptop
 - Wrote files on TTS for
 - F variance
 - F, #F
 - G variance
 - 'G, G, #G

9/26

- Normin Worked on 3D model
- Martin worked with Frostmol
- Worked on Normin's laptop
 - Wrote protocols for subvariances of:
 - A family
 - B family
 - C family
 - D family

4/27/11

- Nermh Worked on 3D model
- Marth Worked with Fret Metal
- Used Nermh's Laptop
 - Wrote protocols for subvariances in
 - E family
 - F family
 - G family

4/28/11

- Nermin worked on 3D model
 - Martin doing something with teener. Not exactly sure what. Involves lots of wires, and a breadboard
 - Used Nermin's Laptop and Java Eclipse to add files and protocols
 - Tried running program, didn't work
 - Checked online may be issue in `Threepanel.class` file.
- Received advice from

HackerRepublic
 Retrieved April 28
www.hackerrepublic.com

4/29/11

- Nermah worked on 3D models
- Martin worked with Finer and breadboard
- Tried solutions found online, none worked
- Decided I may be in over my head with the software
- Abandoning wireless system due to time limitations for now
- Strung wires from guitar tuner slot to control slot

5/2/11

- Researched ASTM standards for testing a guitar

- Tests:

- Accuracy of tuner

- Will have one tuner plugged in ~~end~~ output jack, a 2nd one built into guitar.

- Guitar will be strummed, results of both tuners recorded

- Test will be recorded 10 times per string

- Efficiency of Tuner

- Will have subjects tune a guitar using built-in tuner, using external digital tuner

- Will time test subjects, use times as data.
 - Each will tune 5 times

5/2/11 ConX

- Ease of use

- Test subjects will tune guitars 1 time each
- Subjects will rate, on scale of 1 to 10:

- Ease of Use

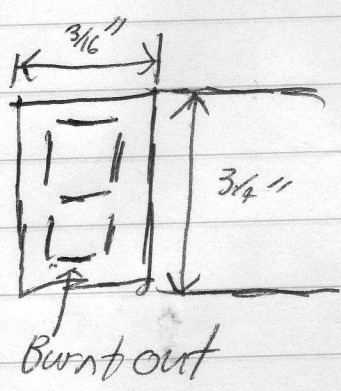
ATSM International Corp

Retrieved May 2, 2011

<http://ATSMINTERNATIONALCORP.COM/standards/electronics/conv>~~Retrieved May 2, 2011~~

5/3/11

- Wrote up a template for testing
- Wrote ~~template~~ testing document for Accuracy test
- Nermin Worked on CAD models
- Martha Worked with tuner
 - Working with 7 segment display
 - Issue of a burnt out segment



5/4/11

- Norma worked on 3D model
- Wrote up testing document for Efficiency of Tuner
- Martin Worked with Tuner
 - Attempting to correct second 7 segment
 - Could replace broken one on side of guitar

5/5/11

- Nermih Worked on 3D model
- Wrote up document for Ease of Use of Tuner
 - Turned documents in to Mr. Holmoh for Approval
- Martin worked on guitar 7 segment display

5/6/11

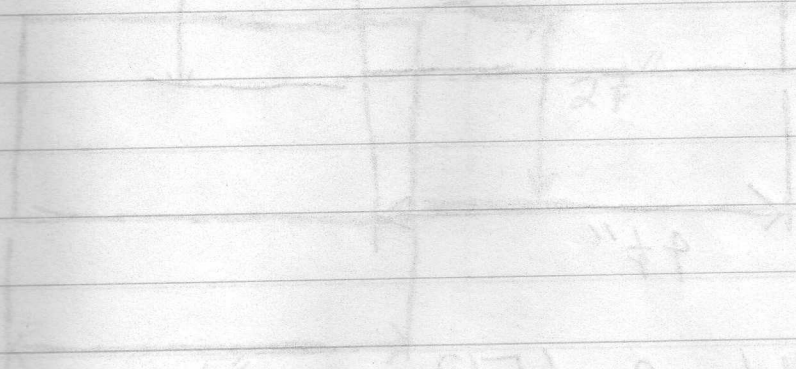
- Nermih worked on 3D model
- Martin worked on 7-segment
- Began tackling issue of fitting batteries
 - batteries too big to fit.

5/9/11

- Nermin worked on 3D model
- Martin and I worked on deciding how to fit tuner

tuner

- Cut into cover using hand saw

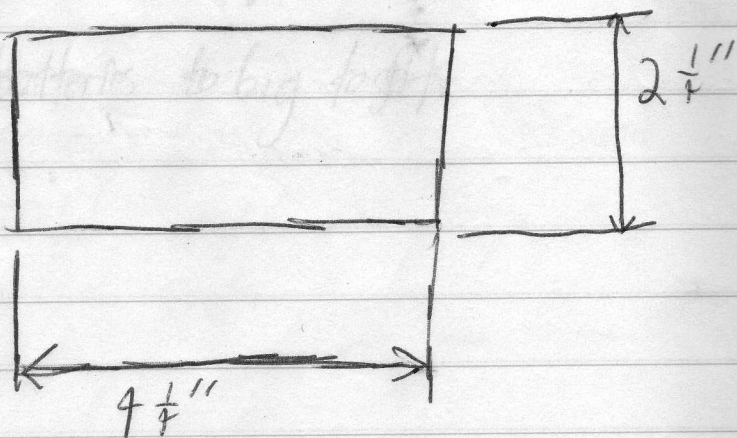


- Hole for LED, but in wrong location

- [Faint, illegible text]

5/10/11

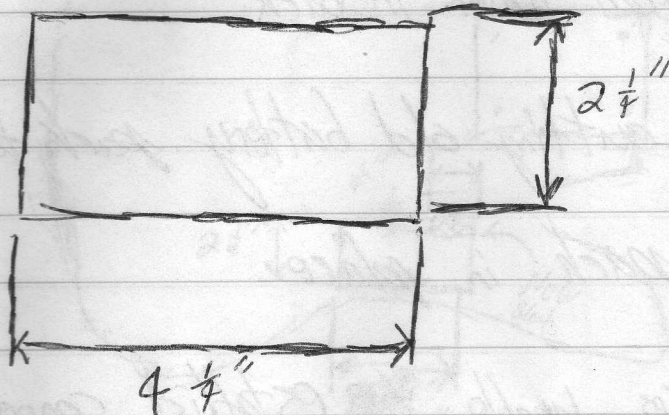
- Nemih worked on 3D model
- Martin and I used band saw
 - cut out tuner cover



- Holes for LEDs put in wrong locations
- Chiseled slot so batteries may fit

5/11/11

- Nermin worked on 3D model
- Martin and I worked on guitar
 - ~~Cut~~ Cover from yesterday does not fit
 - Cut new cover ~~from~~ using band saw



- Tried working on solutions for battery pack

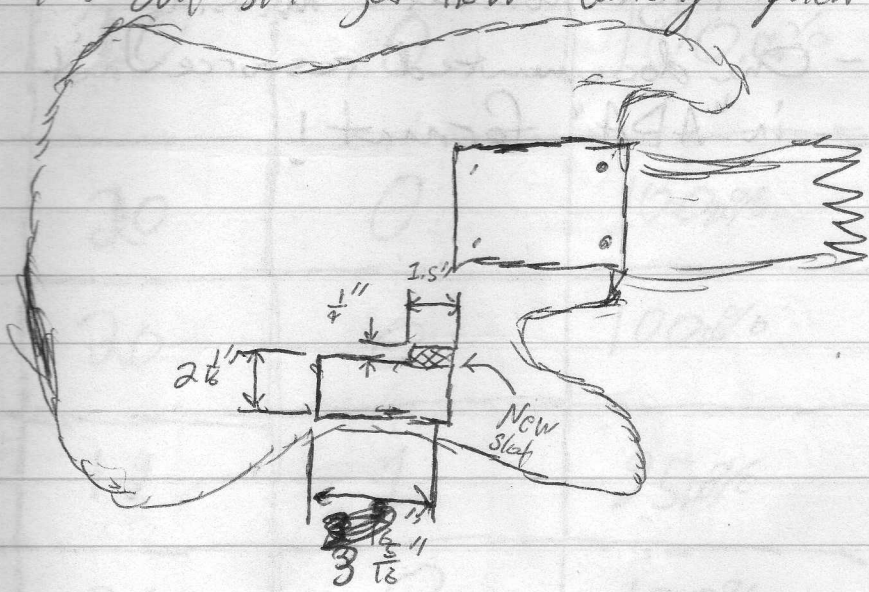
5/12/11

- Nermin worked on 3D model
- Martin and I worked to install tuner
 - Soldered all ~~is~~ wire connection points in guitar body
 - Resoldered tuner in back
 - Tried cutting old battery pack to fit
 - Glued pack in place
 - Batteries unable to establish connection
 - tried soldering to improve connection
 - Ended up melting casing
- Went to Wings Hobby Shop
 - Picked up new battery pack for ~~\$~~3.49

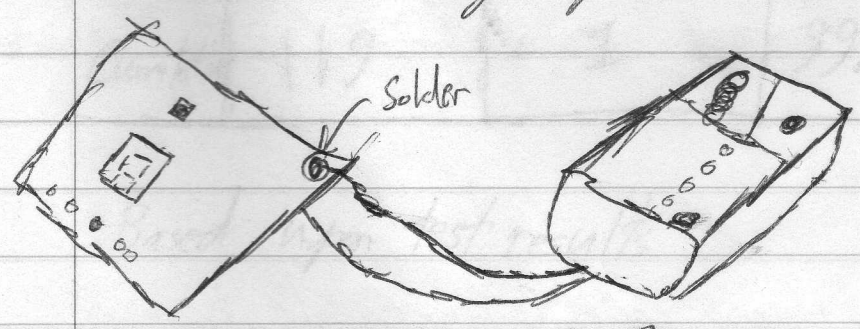
5/13/11

- Nemanin looked for missing screws and worked on 3D model
- Martin and I worked on guitar

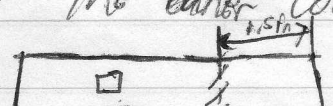
- Chiseled out slot for new battery pack



- Soldered battery pack to tuner



- Cut part of the tuner cover



3.49

5/16/11

• String guitar

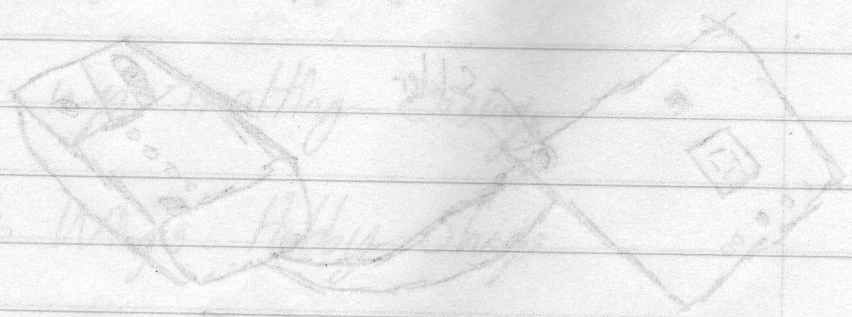
• testing to begin tomorrow

S.A
5/17

- Chronological Organization

- Page numbers missing ?

- One documented resource not in "APA" format!



5/17/11

• Begon ~~Efficiency~~ Test Reliability Test

String	Matches	Non-matches	Match %
E	20	0	100.00%
A	20	0	100.00%
U	20	0	100.00%
D	20	0	100.00%
G	20	0	100.00%
B	19	1	95.00%
e	20	0	100.00%
Cumulative	119	1	99.17%

• Based upon test results

5/18/11

Began Tuner Reliability test 2 (uses Strobe tuner)

String	Matches	Non-Matches	Match %	
E	20	0	100%	
A	20	0	100%	External
D	20	0	100%	Internal
G	20	0	100%	External
B	17	3	85%	External
e	20	0	100%	Internal
Cumulative	117	3	97.5%	

- Tested Control, works fine/readings should be accurate
- Based upon data, tuner falls within reasonable range of error
- Noted: B string only source of error in both tests, may have to do with string?

5/18/11 Cont.

• Met with test subjects 1 and 2

• Commenced efficiency testing

	Subject 1 (Time)			Subject 2 (Time)		
External	1:28:00	1:15:01	1:12:02	:47:58	:42:00	41:83
Internal	:28:03	:25:00	:24:96	:17:18	:16:78	17:05
	60	50-60	40-60	30-40	20-30	20-30

	Subject 3			Subject 4		
External	1:34:08	1:22:06	1:16:05	:42:54	:38:53	:40:65
Internal	:32:01	:36:05	:32:07	:19:03	11:02	16:04
	60+	40-50	30-40	20-30	20-30	20-30

should

5/19/11

Decreased by:	60+	50-60	40-50	30-40	20-30	10-20	0+
Percentage	16.667%	16.667% 8.333%	16.667%	16.667%	16.667%	0%	0%

• Tested Control, works fine readings should be accurate

• Based upon data, fewer fish within reasonable range of error

• Noted: B string only source of error in both tests, may need to do with string B

5/20/11

- Began Making test Data Slides

0/10	-20/00
0/10	0/4

5/23/11

- Finished Test Data Slides

5/24/11

- Worked on Portfolio

Worked on Portfolio

Worked on Portfolio

Found Missing Temp Drive

5/25/11

• Worked on Portfolio

Worked on Portfolio
Slides

5/26/11

- Worked on Portfolio
- ~~Worked on [scribble]~~
- Found Missing Jump Drive

5/3/11

• Worked on Portfolio

~~Worked on Portfolio~~

• Found Missing Journals

161 7/5/11

6/11

• Worked on Portfolio ~~Project~~ on Portfolio.

162: 1101

6/21

- Worked on portfolio ~~about~~ no budget.

123

6/3/11

• Worked on ~~the~~ Commercial

FCT

6/6/11

• Presented Product ~~no bottom~~ •

Contacts

9/15/10

1. Keith Johnson

1-440-476-8915

2. Karl Schrecher

Work: 1-440-942-2133

karl@modtech-corp.com

Cell: 1-440-728-7044

3. Edward Holmok

216-529-4172

ed.holmok@lakewood.k12.oh.us

4. Gary Rice - Rock and Roll Hall of Fame Guitar Repairist

216-221-0190

5. Martin Menke

Cell: 216-288-9754

6. Nermin Abdic

Home: 216-226-3774

7. Sharon Marrell

216-228-4885

1733 Madison Avenue Lakewood OH 44107

music@marrellinstrumentrepair.net

Owner, Lessons, and Repair technician

8. Nick Stipanovich

216-651-1940

matt@turbomachineandtool.com

Cell: 216-224-6558

9. Jeremy Lavelle

216-658-6452

R.C.

~~10 Tom~~

~~Sinclair Community College~~

9.14

10/26

10. Tom Singer

(937) 512-2838

Engineering and Industrial Technologies Department

Sinclair Community College

tom.singer@sinclair.edu

7/24

11/15

11. 70 Lewis

www.70LewisEPK.com

12. Tamyra Xielva/Final Flight

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Tamyra Xielva on Facebook

bloomingtonrose @ flashpointgraphics.com

Cell: 1-440-395-2639

Vocalist/Guitarist of Final Flight

13. Meg Zimmerman

Cell: 1-440-670-2534

Guitarist/Vocalist in Esoteric

14. Michael March

Home: 1-216-221-4716

Bassoonist/Clarinetist/Guitarist

Cell: 216-212-7048

15. Phil Urban

Cell: 1-216-533-5409

Civil Engineer/Guitarist

7/24

11/15

16. Hillary Demmer

Home

Guitarist

17. Curtis Lane

18. Mark Acceta
(216) 767-6060

19. Matthew Sims
(216) 299-3649

2/8
A. A.
5/17
A. A.

1. Kelly Johnson
2. Kelly Schreiber
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216-394-4624

MULTIPLICATION TABLE

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24
3	6	9	12	15	18	21	24	27	30	33	36
4	8	12	16	20	24	28	32	36	40	44	48
5	10	15	20	25	30	35	40	45	50	55	60
6	12	18	24	30	36	42	48	54	60	66	72
7	14	21	28	35	42	49	56	63	70	77	84
8	16	24	32	40	48	56	64	72	80	88	96
9	18	27	36	45	54	63	72	81	90	99	108
10	20	30	40	50	60	70	80	90	100	110	120
11	22	33	44	55	66	77	88	99	110	121	132
12	24	36	48	60	72	84	96	108	120	132	144

CONVERSION TABLE

LENGTH

1 millimetre [mm]		0.03937 in
1 centimetre [cm]	10 mm	0.3937 in
1 metre [m]	100 cm	1.0936 yd
1 kilometre [km]	1000 m	0.6214 mile

1 inch [in]		2.54 cm
1 foot [ft]	12 in	0.3048 m
1 yard [yd]	3 ft	0.9144 m
1 mile	1760 yd	1.6093 km
1 int nautical mile	2025.4 yd	1.853 km

AREA

1 sq cm [cm ²]	100 mm ²	0.1550 in ²
1 sq m [m ²]	10,000 cm ²	1.1960 yd ²
1 hectare [ha]	10,000 m ²	2.4711 acres
1 sq km [km ²]	100 ha	0.3861 mile ²

1 sq inch [in ²]		6.4516 cm ²
1 sq foot [ft ²]	144 in ²	0.0929 m ²
1 sq yd [yd ²]	9 ft ²	0.8361 m ²
1 acre	4840 yd ²	4046.9 m ²
1 sq mile [mile ²]	640 acres	2.59 km ²

CAPACITY/VOLUME

1 cu cm [cm ³]		0.0610 in ³
1 cu decimetre [dm ³]	1,000 cm ³	0.0353 ft ³
1 cu metre [m ³]	1,000 dm ³	1.3080 yd ³
1 litre [l]	1 dm ³	1.76 pt
1 hectolitre [hl]	100 l	21.997 gal

1 cu inch [in ³]		16.387 cm ³
1 cu foot [ft ³]	1,728 in ³	0.0283 m ³
1 fluid ounce [fl oz]		28.413 ml
1 pint [pt]	20 fl oz	0.5683 l
1 gallon [gal]	8 pt	4.5461 l

1 fluid ounce	1.0408 UK fl oz	29.574 ml
1 pint (16 fl oz)	0.8327 UK pt	0.4731 l
1 gallon	0.8327 UK gal	3.7854 l

WEIGHT/MASS

1 milligram [mg]		0.0154 grain
1 gram [g]	1,000 mg	0.0353 oz
1 kilogram [kg]	1,000 g	2.2046 lb
1 tonne [t]	1,000 kg	0.9842 ton

LIQUID MEASURE CONVERSION

			1/2 fl oz =	1 tbsp =	3 tsp
		1/8 cup	1 fl oz	2 tbsp	6 tsp
		1/4 cup	2 fl oz	4 tbsp	12 tsp
		1/2 cup	4 fl oz	8 tbsp	24 tsp
	1/4 qt	1/2 pt	1 cup	8 fl oz	
	1/2 qt	1 pt	2 cups	16 fl oz	
1/4 gal	1 qt	2 pt	4 cups	32 fl oz	
1/2 gal	2 qt	4 pt	8 cups	64 fl oz	
1 gal	4 qt	8 pt	16 cups	128 fl oz	

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Item # 03452



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