Final Formula

Meeting Minutes
September 9, 2016

Opening:

Location: Think Tank

Recorder: Brian Remsen

Attendance:
Brian Remsen

David Pick II

Bill Duncan

Summary of work last week:
N.A.

Open Issues:

1. Finishing the team contract
    a. Sign and turn in
2. Finish discussion about the overall project
3. Documentation:
    a. CAD files
    b. Papers from previous work

New Business:

1. Discuss next meeting with Odom
    a. When we can access the car during the week/year
    b. Access to the computer on IEW
    c. Where are the CAD files of the engine
    d. Getting access to the CATIA lab
    e. Overall plan
        i. Done in stages
            1. Stage one: Exhaust and intake redesign (Solid models, Simulation, and manufacturing)
            2. Stage two: ???
        ii. Enter overall changes and simulations into competition

2. CAD file organization
    a. Reorganize, label, and create new folders
3.

Action Items:
Bill:

1) Create excel spreadsheet for parts organization

Brian:

1) Track down and move/copy CAD files to new final formula file

David:

1) Additional resources on GT suite and rhino rendering tutorials

Final Formula

Meeting Minutes
September 9, 2016

Opening:

Location: Odom's office

Recorder: Brian Remsen

Attendance:
Brian Remsen

Bill Duncan

James Founds

David Pick II

Dr. Odom

Summary of work last week:
Last week initial research of the current project was started; project scope was formed for the overall project. The team started a plan for organization of the old CAD files.

Open Issues:

1. ModeFrontier
    a. will be installed IEW (running within the week)
2. GT Suite
    a. Will not have until the end of November
3. Engine package from James
    a. Create master parts folder
4. Rhino
    a. In GJ 115
5. Client meeting (odom)
    a. 5 things that can be done
    b. Done unless it is a necessary part of the course requirements

New Business:

1. Competition
    a. Check piston size and stroke within specs for comp
    b. Research parameters (4 different sections)
    c. Look for webinars when the competition opens
    d. Hardware wins competitions
2. 7am next Thursday for webinar with racing team
    a. ESTECO academy
    b. Register for webinar
3. ME430 use of engine
    a. Capture as much information as possible
        i. Pictures and videos of the dyno runs
        ii. HP numbers
        iii. Torque numbers
4. Intake
    a. Injector under intake idea (Brian)
    b. Model acoustics of the intake
5. Dave Arnette
    a. Can help disengage the electrical side of the car
    b. Overall knowledge about the car

Action Items:

David:

1) Rhino resources and work
2) Research

Bill:

1) Continued ANSYS Fluent research
    a. Talk to Tao
2) Excel solid model spreadsheet

Brian:

1) Start solid model of intake
2) Check piston size and stroke within specs for comp

Final Formula

Meeting Minutes
September 22, 2016

Opening:

Location: Odom's Office

Recorder: Brian Remsen

Attendance:
Brian Remsen

Bill Duncan

David Pick II

Dr. Odom

Summary of work last week:
A meeting was held with David Arnett to discuss the car and what it current state is. The car was found to be in a less ideal state and will need to be discussed with Odom. While in that meeting we were able to discuss the safety procedures while using the car of testing. We were also able to track down the CAD Files start the organization of the parts. This morning we all watched a webinar about the completion.

Open Issues:

1) GT suite
    a. Will have on December 1st
2) modeFRONTIER
    a. will have in IEW within this week
3) Rhino
    a. License in CATIA lab is not valid
4) Consider adding a person through the competition
    a. Different Country

New Business:

1. Client interview
    a. Number one goal is to win the competition
    b. GT suite will be useable on December 1st

    c. Combining modeFRONTIER, ANSYS, and the combustion program
    d. Not to worry about the Formula Hybrid car
        i. Unless we decide that we want more work

2. Build MOTO3 GP 250 CC race engine
    a. Optimize using the programs
    b. Specs in Client interview and ESTECO information folder
3. SolidWorks
    a. Email Odom for access to the program on personal computers
4. Intake design for formula hybrid
    a. Set decision date to make the part

Action Items:

Brian

1) Talk to Revolution (SDS, MSDS)
2) Talk to Dan for IC engine Software

Bill

1) Talk to Dan about valve angle
2) Look up performance improvements

David

1) Send Odom and email for Stirpe
    a. Files and documents
2) Look up performance improvements

Final Formula

Meeting Minutes
September 29, 2016

Opening:

Location: Odom's Office

Recorder: Brian Remsen

Attendance:
Brian Remsen

Bill Duncan

David Pick II

Dr. Odom

James Founds

Summary of work last week:
Last week the client interview was conducted. We learned that we will be switching directions from our original project idea that was presented in class. We discovered that out current YZ 250 does not meet the specs for the ESTECO competition. We will be just focusing on the competition, not the formula hybrid car.

Open Issues:

1. ME430 use of engine
    a. Repair and replace top end of dyno engine
2. modeFRONTIER
    a. Struggling with modeFrontier
        i. No license for use
    b. Odom will look at it tomorrow
3. SolidWorks
    a. Odom is looking into the new version of SolidWorks
4. Rhino
    a. Computers 4 and 5 have it installed

New Business:

1. Use combustion program for 433 this week
    a. Get Beyerlein to next meeting
    b. Exhaust program/intake program

2. Logbook check next week
    a.
3. Clean up of the HEV shop tomorrow
4. Gather programs here in the university
5. Talk to Rick Leathers, Justin Pettingew, Dillon Savage
    a. IEW office Designed the muffler
6. Letter of enrollment
    a. Vandalweb (student tab)
7. Talk to preffosers about help on the project
    a. Beyerlein
    b. Dan
    c. Crepau

Action Items:

Everyone needs to send in the letter of enrollment

Two paragraphs of project learning each

1. Bill
    a. Fluent (continue work)
    b. Locate other thesis
    c. Project goal write up
2. Brian
    a. Locate new cams for engine
    b. Finish and finalize minutes and agendas
3. David
    a. Remind Odom, Catlin get contact information
    b. Portfolio form

Final Formula

Meeting Minutes
September 22, 2016

Opening:

Location: Odom's Office

Recorder: David Pick II

Attendance:
Brian Remsen

Bill Duncan

David Pick II

Dr. Odom

Summary of work last week:

Open Issues:

1.

New Business:

1. Combustion Program
    a. Brian is working on pulling necessary equations and trimming the fat
    b. We want torque to find forces acting on the connecting rod to begin design and FEA
2. Engine Rebuild
    a. Bill and David will try to move it to HEV on Monday @11:30
    b. Perform a pressure test if possible
    c. Take pictures of engine
    d. Engine MUST be rebuilt by 2nd week of November
    e. Intake & exhaust will need to be robbed from the Formula Hybrid car
3. ModeFrontier
    a. Bill will be the lead investigator for modeFrontier
    b. Weekly Schedule
        i. Team – 7-9pm on Tuesday in IEW
        ii. David – Wednesday afternoon

        iii. Bill – Monday and Wednesday
        iv. Brian – intermittently when his schedule permits
    c. Integrate modeFrontier and combustion MATLAB code by November 4th
4. Divided Responsibilities
    a. Brian
        i. MATLAB combustion program dissection and simplification
        ii. Talk w/ visual people about Final Rhino/Flamingo renders
    b. Bill
        i. Lead investigator for modeFrontier
        ii. Investigate use of ANSYS Fluent
    c. David
        i. Perform FEA on connecting rod from shared drive
        ii. Perform FEA on connecting rod when we develop ours
        iii. Investigate Rhino/Flamingo rendering
5. Final Report for ESTECO
    a. Introduction section of team report should be finished by January
6. Final PowerPoint for ESTECO
    a. We should include some renders of parts and some of the engine
    b. We may be able to get members of Visual Design to perform large, artistic renders for us

Action Items:

1. Brian
    a. Continue to work with combustion program to prep for MATLAB/modeFrontier integration
2. Bill
    a. Continue to investigate modeFrontier
    b. Continute to investigate ANSYS Fluent
3. David
    a. FEA of connecting rods
    b. Rendering

Minutes submitted by: David H. Pick II

Approved by:

Final Formula

Meeting Minutes
October 20, 2016

Opening:

Location: Odom's Office

Recorder: David Pick II

Attendance:
Brian Remsen

Bill Duncan

David Pick II

James Founds

Dr. Odom

Summary of work last week:

Open Issues:

1.

New Business:

1. Combustion Program
    a. Making progress, but the program is very large and time consuming to delve through
    b. Hoping to utilize output from combustion program to facilitate piston and connecting rod design shortly
2. ModeFrontier
    a. Bill is making slow progress, there are many steps. It isn't complicated just time consuming, especially with notetaking
3. Design Review
    a. Dan suggested that we should have multiple design decisions prepared for our design review including piston and con-rod design
    b. Dan suggested that we should include himself, Dr. Beyerlein, and Dr. Kumar in our design review to utilize their engine expertise

Action Items:

1. Brian
    a. Continue to work with combustion program to prep for MATLAB/modeFrontier integration
2. Bill
    a. Continue to investigate modeFrontier
    b. Continute to investigate ANSYS Fluent
3. David
    a. Take Stirpe Piston and create rhino renders “So good you want to eat it” as per Dr. Odom

Minutes submitted by: David H. Pick II

Approved by: Brian Remsen

Final Formula

Meeting Minutes
October 27, 2016

Opening:

Location: Odom's Office

Recorder: David Pick II

Attendance:
Dylan Johann

Bill Duncan

David Pick II

Dr. Odom

Absent:

Brian Remsen (Medical)

Summary of work last week:

Open Issues:

1.

New Business:

1. Potential New Team Member – Dylan Johann
    a. We talked with Dylan in regards to class load, time commitment, and interest
    b. We decided, with need for approval by Brian to allow for full team decision, to bring Dylan onto the team
2. ModeFrontier
    a. Bill walked Dr. Odom through the first modeFrontier tutorial

Action Items:

1. Brian
    a. Continue to work with combustion program to prep for MATLAB/modeFrontier integration
2. Bill

    a. Continue to investigate modeFrontier
3. David
    a. Take Stirpe Piston and create rhino renders “So good you want to eat it” as per Dr. Odom

Minutes submitted by: David H. Pick II

Approved by: Brian Remsen

Final Formula

Meeting Minutes
November 3rd, 2016

Opening:

Location: Odom's Office

Recorder: Brian Remsen

Attendance:
Dylan Johann

Bill Duncan

David Pick II

Dr. Odom

Brian Remsen

Summary of work last week:

Open Issues:

1.

New Business:

1. ESTECO Academy Package
    a. Send all documents to James to be submitted for the competition
    b. Dylan needs to submit the forms then we can send off the packet.
2. ModeFrontier
    a. Integration into the combustion program is looking to be too large of a first program to tie into mF
    b. We need to scale back and start with more tutorials, including the welded beam and Odom's TK problem
    c. By the end of the week have the mF to excel to TK working
3. Rhino Renders
    a. David brought in the results of his initial rendering trials in Rhinoceros
    b. The renders were of good quality, but the material textures were not completely accurate
4. Responsibility of posting the meeting minutes
    a. Posted by Sunday night

b. David will start with posting minutes

Action Items:

1. Brian
    a. Continue to work with combustion program to create power graphs and manual input of variable ranges to investigate better performance
    b. Solve Excel tutorial in modeFrontier
2. Bill
    a. Continue to investigate modeFrontier
    b. Solve Excel tutorial in modeFrontier
3. David
    a. Work on more realistic renderings in Rhino (feedback from the team and Odom)
    b. Work on organization of meeting minutes

Minutes submitted by: Brian Remsen

Approved by: David Pick II

TITLE Team Meeting w/ Beckerfern PROJECT

Continued from page

- Do we have any H Beam conrod design
  - lighten conrod ?
  - with geometry change value as a function of crank angle
  - how does the change combustion pattern
    - keep fixed ? si three model
    - Use as volume as fxn crankangle
  - Change base as a result of bore base
  - Initial model
- Peak vs mean vs rod angle
- Heywood may have guidelines on is
  Perhaps - a compression wave
- Have base geometry - Ring Placement
  - How many rings
- ~~Model thermal expansion~~ in Piston for later
- Get Pistons measure later
- Randal
- Chuck - Dears ? Intake exhaust opening
  chuck

Accoustical filling vs fluid mechanical
~~Pure accoustics~~ - volume ebbing of engine
~~Placement of throttle valve Accoustical~~

- Roll down tests on a motorcycle
  - Pick [illegible]/30

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DATE 11/10

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DATE

PROPRIETARY INFORMATION

TITLE Team meeting w/ Dr Bernstein PROJECT

Continued from page 50

- Blair on Intake/exhaust design
  - does it account for acoustics

- Helm holtz resonators for acoustical performance?

→ Design review
  Convey understanding of concepts
  - where to focus most
  - Basic Nominal values

→ Moto 3 Race Data?

- Need more parameters to opt
- Back solve for drag coefficients

- TK shift points when to shift

- Blair - Info on shift points for known torque curve

- Action Items

  - Excel
  - ADD ins
  - TK+S addin

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DATE 11/10

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DATE 11

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BOOK PAGE

TITLE Design Review PROJECT

Continued from page

Need to work on slideshow!

- Some fonts hard to read
- Need to improve graphics / Larger graphics
  - ensure View mode is correct for buy obs to use Presenter mode on slides

To improve -

- need to [illegible] of each Part that will be [illegible]
- Apply ourselves to the Progress and to [illegible] to turn out good work
- [illegible] from the [illegible] to be a [illegible] of the [illegible].

- Reflection: All told, it looks as if the team is Progressing well. We have several areas to improve and will need to cover much info when we get more details on the project.

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DATE 11/17

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DATE

PROPRIETARY INFORMATION

TITLE *Team meeting* **PROJECT**

Continued from page

— Need to get Gd suite installed on IEW computer
— Ankit working on it

— Computer is having a problem with one of the [illegible] sensor

— Brian working 90+ hrs next week — Pretty much out

Dylan has Gd installed but needs .ovl file

— Have to look up no time to do it [illegible]

Computer has started — No additional information
Computer is open-ended

— Reflection:

We were expecting additional information for the Gd suite we [illegible] do not have said info [illegible] way to create it and then [illegible] a meeting

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DATE 12/1/2016

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DATE

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BOOK PAGE

TITLE Team meeting PROJECT

Continued from page

— Need to Communicate to Dr. Olson Better -

= List of [illegible] in [illegible] G+ [illegible]

— Need to [illegible] all meeting brought in

— [illegible] of the [illegible] [illegible] to get [illegible]

— Bill Valvetrain
G+

— David — Rhino/Modfram

— Brian - working
— G+ engine
— Matlab/[illegible]

— Dylan - will look into Blade and work on [illegible] on G+ over break

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DATE 12/8/16

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PROPRIETARY INFORMATION