Mariokart
An autonomous go-kart

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Overview

The Goal

- "The aim of this project is to take the departments go-karts and build in a system to replace the human driver. This will entail (at least), selection of appropriate actuators, motion and distance sensors, development of a navigation system, an interface to the existing control system, and a central computing platform. A suitable navigational goal would include a circumnavigation of S block."

Our Goal

- Make a robust platform for future projects
- Set sub-goal of of drive-by-wire go-kart

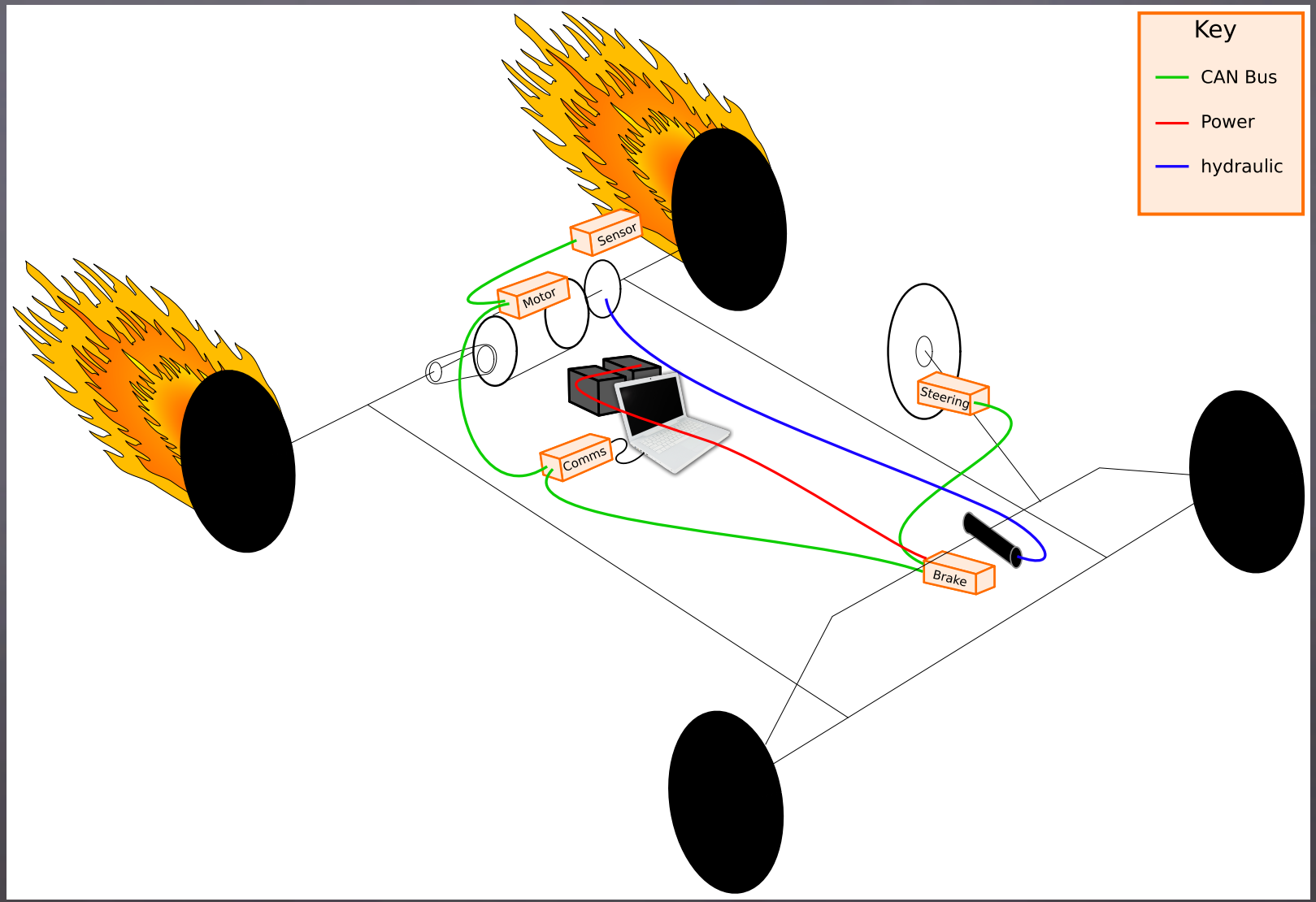
Hardware Layout

Each Board

Block diagram of PCB

Hardware Layout

Whole kart



How it all communicates

Comms

CAN Bus

- Inter-Board Communications
- Expandable if someone wants to add more nodes

USART

- Two on each Board
- One used for debugging

SPI

- Two on each Board
- One 5v level logic

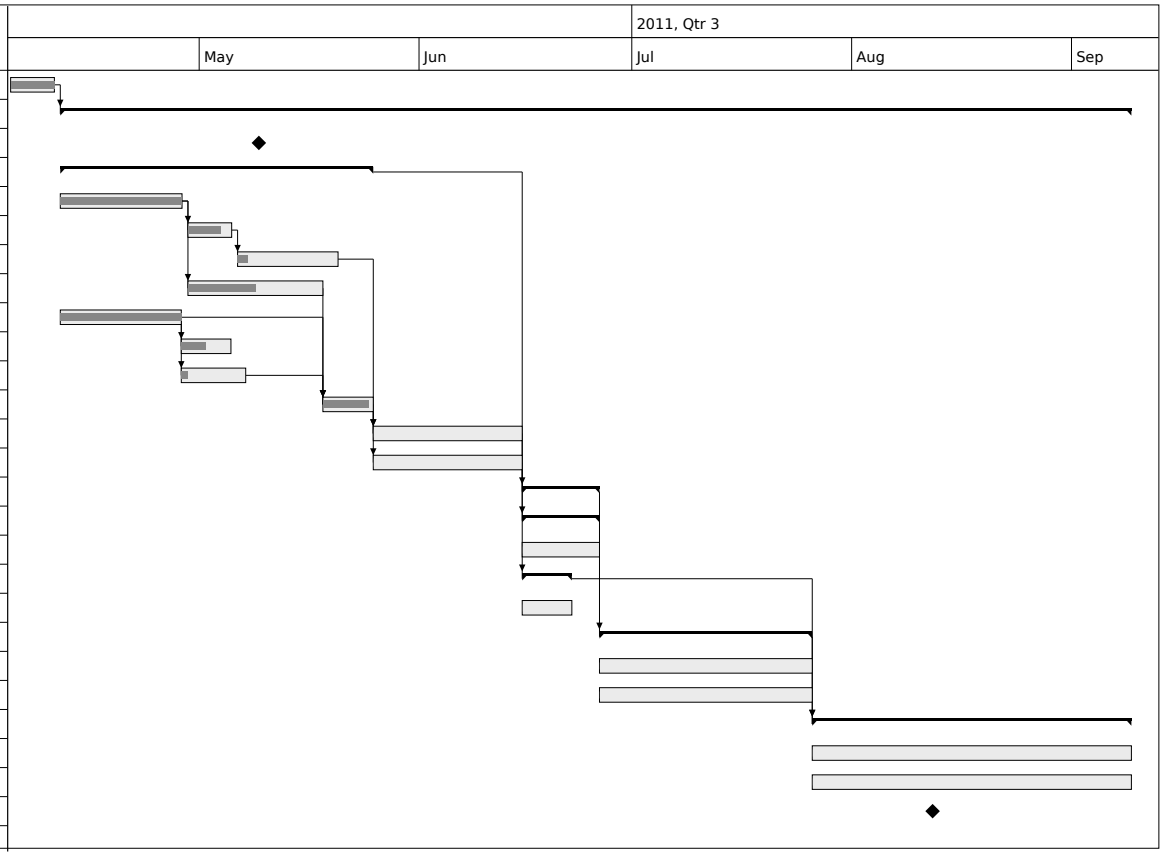
USB

- Fast communication with computer

Project time line

Gantt Chart

Name	Work
Project Setup	7d
Autonomous Go-Kart	**389d**
Assessment: Specification Report	
Design phase	**162d**
System Diagrams	36d
Schematic Design	14d
PCB Design	21d
Parts List	25d
Servo Selection	35d
Servo Circuit Schematics	14d
Servo Mount Design	14d
Costing	3d
Order Electronics	21d
Order Servos	21d
Build Hardware	**35d**
Mechanical Hardware	**21d**
Build Servo Brackets	21d
Electronics Hardware	**14d**
Populate compoents	14d
Autonomous Hardware	**60d**
Sensors	30d
Control interface	30d
Software Devel	**90d**
Automation Software	45d
Control Software	45d
Deadline for new jobs in the workshop	



Conclusion

The end...

- All Hardware working
  - Only 3 minor mistakes on Boards
  - Nice hardware platform for future years
- Project almost stuck to time plan
  - Although we cut the Goal down, we came close to achieving our stepping stone Goal.
- Project well documented
  - Wiki for documentation
  - Group coding standard adhered to
- Most of all
  - I learnt a lot
  - Had a heap of fun