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|  | Message/Goal | Similarities | Interesting |
| 1 | Design Control architecture for navigation  Allow long endurance autonomous missions | - All sensors connected to Arduino (simple)  - GPS, wind sensors, compass | -windsock sensor  -Software uses two loops external for high-level (navigation). Inner loop for control (interrupts)  -Control simulated in MATLAB |
| 2 | First successful long running robotic sailboat  -Maritime Research missions | -Use 3 solar panels for power  -Sensors  - compass, GPS receiver  -weatherstation is primary sensor unit  -backup power direct methanol fuel cell | -based off of the shelf yacht model  -remote control software  -many redundant sensors incase of failure  -give suggestions to lower power consumption  Missing: collision avoidance, has negative energy balance, specific control to boat |
| 3 | low power, operate over range of conditions | -microtransat  -final year engineering group design project  -solar panels  -use direct methanol fuel cell for backup power | -self-righting design  -redundant system for two linearly actuated control surfaces(rudders) designed incase 1 fails |
| 4 | Further research and development in area of unmanned autonomous robotics exposed to heavy environmental conditions  - robust mechanical design and optimal navigation | -microtransat  -Solar power stored in four lithium-manganese batteres.  -backup direct methanol fuel cell | don’t use ropes that generate knots or jims (rig)  -controller switches between different modes of sailing depending on wind shifts  -use path planner  -angular mounted twin-rudders (better control at high-heeling angles)  -use GPS with IMU accurate positioning  -collects position and velocity data from other boats (VHF)  -simulated in Matlab |
| 5 | Flexible and powerful hardware for computerized control  Execute high-level control algorithms and provide a readable and modular implementation environment for algorithms | -embedded computerized control  -high level control navigation  -low level sensor modular expandable  -Actuators and sensors connected as nodes to an internal bus | -accelerometer, magnetometer, GPS, wind direction sensor  - use roll and pitch, heading  Four modes of control of operation   * Semi manual, heading hold, waypoint tracking, path following |
| 6 | Can be used for wide variety of ocean applications  Measuring ocean and atmospheric parameters, tracking oil spills, acting as communication  -act as a buoy | -power provided by solar panels  -compact, robust | -internal autopilot batter pack holds enough energy to navigate for 6 months without charging  -not dependent on solar power  -designed not to get caught in debris or structures  -commercially available |
| 7 | To complete microtransat challenge | - microtransat  -8 LiFePo4 30Ah cells charged by 6, 24 and 18 Watt solar panels.  Free-Rotating Sailwing | Iridium satellite for communication  -Reports humidity inside waterproof  Housing  The sandwich structure made of carbon fiber and a foam core  provides stiffness while the outer layers of fiberglass protect the hull from impact and abrasion |
| 8 | Undergraduate project for trans-Atlantic attempt | -Electrical engineering department  -microtransat  -proto-threading  -sensor connected to arduino simple hardware  -solarpanel  -maximum power point tracking  -section on application to engineering education | Missing: rudder was delayed because waiting for navigation subroutine to execute (last version) |
| 9 | Built for use in oceanographic research and autonomous systems development | Morwyn (long endurance design)  - | Missing: keel is not as streamlined as it could be  -stability limited due to shallow draft |
| 10 | Want to improve reliability of past versions | -Microtransat  3 sensors: compass, GPSS, anemometer | Different waterproof zones  Servo motors powered by separate circuit from microprocessor   * Energy supply can be put on stand-by in order to limit losses   Missing: had difficulty waterproofing their boat   * Expensive and not reliable to seal * Decided to make unsinkable boat |

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