



BASINGSTOKE MODEL BOAT CLUB

Newsletter

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March / April 2019

Well, April is just coming around the corner, spring is here and it is time again for your BMBC Newsletter. This edition marks the end of the 2018 /2019 year and we start a new year in the Club from April this year.

This has been yet another year of unprecedented gains in membership with a few of the older members no longer able to sail with us but new blood (metaphorically speaking) in the form of members joining us which is most welcome. Since the beginning of 2018 we have had 21 new members join our Club which is great news but correspondingly we do lose a few members.

Our Club can only stand on the active membership and we must be seen to be using our lake at every possibility and to put the name of our Club forward at every opportunity we have, so thank you to the many members, old and new, who support us.

We are not a Club of formalities and we try to make it as relaxed as it can be and that is why it is, I believe a great Club to belong to. This year has, from a membership point of view, been very successful and we now have a membership that stands at 86 (5 new members having joined at the end of our 2018/2019 Club Year), and I hope that everyone again renews their membership this year. Our latest members who have joined us since January 2019 are Michael Hoare, Richard Lazlo, Colin Patient, Melvyn Spiers, Clive Jones, Chris Keogh and we thank them for joining our Club and look forward to seeing them sailing at our pond where we hope you will give them a warm welcome.

Up The Pond news

Well, what a winter we have had since January – wet and cold, sunny and mild and of course snow and ice plus of recent exceptionally high winds. Despite the weather we have had a very good turn-out of hardy Club members on each of our sailing days. Even when the pond was frozen solid, some members came to wistfully look at the pond hoping the ice would melt and let them sail their boats ! When the sun shone it was like an early summers day and the pond was filled with boats, it was difficult to think it being winter until the old feet got cold ! Now it is sun and warmth again – hooray and may it stay for the remainder of the year !

When it comes to wind I sailed my DF65 yacht on the pond on 07 March and with my smallest sail – how difficult was that ! I managed to sail but the yacht was difficult to handle what with ‘submarining’ when on a run and difficulties when gybing and tacking – I have never seen waves like it on our pond and all around, the pathways were awash with the water being driven from the pond. Oh so enjoyable but it was cold and the wind was knocking you off your feet. But as I say it is a great pond and place to sail and it certainly beats working for a living.

Forthcoming Events

Basingstoke - Love Parks Event

“Love Parks Week”, a national event sponsored by the Keep Britain Tidy group. Following on from the previous year’s successful attendance at this event we have again agreed to support the Council with this activity. It is being held this year in July but do not have an exact date as yet. As usual we intend to have a Club stand displaying our boats, a table or three for making paper boats for/with any children and their parents and a couple of gazebos to keep us dry if the weather is inclement, in fact similar to previous years. We will still be sailing our boats as a normal BMBC meet and the car park will not be closed off so we will need to get to the park early, i.e.10.00 hours to establish ourselves.

Basingstoke National Play Day

I have just had it confirmed that this will be held on Wednesday 07 August 2019 and we will be doing our normal activities for the children, more news in later Newsletter.

Show / Event Report

37th Annual Modellers Exhibition - Midhurst 2019

As you can see from the above it was the 37th Annual Modellers Exhibition held at the Grange Centre, Midhurst and that is some achievement. As usual, the weeks counted down towards the show and I soon received confirmation from Club member volunteers to attend and support our display on the day Flying the flag for our Club were Andy Clark, Joe Harwood, Chris Cole, Chris Phillips, Chas Redford, Keith Barnes, and myself who attended with many boats to put on an exceptional display.

Sunday morning of the 10th February arrived and as usual for early February the weather was cold and damp. I arrived at about 08.00 hours at The Grange, with

boats intact, having loaded my car in the cold but dry night before. When I arrived the car park was already filling up fast and the centre was already open for business. Our Club's stand was in our usual spot in the main boat hall – the layout of club stands had been kept the same as previous years. It seems like Deja Vous as yet again we had table problems. Although I requested each year and had it confirmed that we wanted 6 tables for our display, I ended up with 4 ! However, with the help of the centre manager I managed to get another 2 small tables for us. With the help of our members I hastily re-organised our tables, put the display covers on them along with our BMBC signs and between us we managed to get 22 of our boats on the tables and what an impressive display it was too.

The doors opened to the public at 10.00 hours and they gradually began filtering in. Our hall was mostly boats, with a small trade stand. Many model boat clubs attended and it was good to meet up with those members that we knew from other clubs, e.g. Swiss Cottage (Shoreham), Phoenix, Springbock, Portsmouth, Eastleigh, Crawley, Selsey to name quite a few. The quality of boats on display was very high and I include ourselves in this too. We had a few Club members visit us on the day and a special mention goes to Pete King. Dave Medway, Ted Hill and his wife, James Bohn, John Meacher, Tony Carter, Melvyn Spiers, Bruce Hepburn and Roy Poynter and his wife for all making the effort (hope I haven't missed anyone – if so I apologise). The organisers told me that the show was very successful and they had an excellent turn out from the members of the public who visited – the best for some years

A lot of interest was shown in all our boats. Keith Barnes brought along HMS Valiant a WWI / WWII Queen Elizabeth Class Battleship which he has on loan from the Surface warships Association. Joe brought his Black Swan, Falke and his tug Yorkshireman, Andy displayed his Moonbeam yacht and Hynish Bay Clyde Puffer plus his Mirror Dinghy. Chris Cole brought along his tug Aziz and his German Search and Rescue vessel Hecht, Chris Phillips showing his Swordsman and yacht White Satin, Chas Redford brought his WWII landing craft(s) and high speed naval launch. I brought up the rear with my Perkasa MTB, Sir Kay Minesweeper and my DF65 yacht. I am sure that I have missed a few out as it was a packed display and one we were very proud of.

Thanks to all the guys that manned the display and helped make it a success and to all those members that visited us on the stand – great to see you there.

As usual there were always sufficient of us on our stand for each of us to go and have a look around the exhibition and there was plenty to see and a few things to purchase although there was not as many trade stands as previous years. There were many halls housing boats, model trains, and other forms of model engineering not to mention the impressive Mecanno – certainly a must visit for next year..

The Model show at Midhurst was very successful and the organisers have decided to put on another summer exhibition plus the usual winter Show. **The date for summer the event is 16th June 2019** and I have provisionally booked a place for our Club – what I need now are volunteers to man our stand. I unfortunately cannot be there but think it will be great so please let me know if you want to help – we need to have a good display of boats and willing members to talk to the public to promote both our hobby and our Club. **I of course have already submitted our booking form for the February 2020 Midhurst exhibition which is being held on the 9th February next year – oh boy, how time flies !!**

A few of our members' boats on display at Midhurst.



Our BMBC Display



Our BMBC Display

We have now got for your delight and delectation a follow-on article from our fellow member Chris Cole on 'Control Systems' which I hope you will enjoy.

Control Systems

Control Systems are devices used to control machines accurately and repeatedly (without getting bored.) They can do wonderful and mysterious things, often with very little external input. For example, from very simple devices to control a fridge light to be only on when the door is open, to very powerful processor controllers for ships engine control - starting, stopping paralleling and reversing engines, large refrigeration compressor plants for cooling in gold mines, or big centrifugal air compressor anti-surge, flow and pressure control. *Provided* the software, the number and logic crunching part, is good and adequately tested, the control works accurately and continuously. Depending on the systems importance, then failsafe systems also need to be considered and it is useful to have tested them before "going live."

The electronic control systems used to operate plant and equipment are referred to as Process Logic Control (PLC) and is where a dedicated "box" takes in information from the outside world, and using the "instructions" built into the box, often in the form of the software, then it sends out to the outside world, things for it to do. For example a moisture probe is connected to the controller, which works out what the electrical value from the probe means, the measured value, then compares this to a set point and decides if there is a difference, (i.e. moisture has been detected) and sends a signal to a bilge pump to start pumping out the water, till the probe no longer senses the water level in the boat.

To develop a control system :-

- Decide what it is going to do.
- Put in as much detail as possible
- Find out how it will do it, in sections if necessary, (build up the sequence,)
- Put it all together
- Test it modify and refine where it doesn't do it
- Check that it does what you originally wanted, (does it matter if it doesn't? Maybe the result is better?)
- Put it into operation.

When designing a control system, many things are considered, including why do we need any control system, how far does the automation go, and can it be done better, more accurately, repeatedly and cheaper, by any other methods? The more automatic the system becomes, the less those working around it, will understand of what is actually happening, and so in cases of problems, they will have little or no knowledge of what to do to resolve those problems, and their interference may even make the problems worse!

Arduino

The "Arduino" is the name of the family of micro-controllers, MCU, developed to teach, and be used to control all manner of things, like lights, buzzers, ticket machines, data retrieval systems and so on. They are able to take in or measure signals or inputs, and run some dedicated software instructions repeatedly, and then output signals. Others are the Basic Stamp, PICAXE or MICROCHIP.

There are other small similar devices out there like the Raspberry Pi, but these are actually micro computers, and are better suited to running multiple programmes, and are often connected to not much more than keyboards, mice and screens. Good for text, displays, number crunching, internet actions and the like.

The Arduino family is many and various, with currently the best starting point for learning the system is the UNO R3. It has many input and output pins, a USB connection for

programming, and power supply connections. The MEGA has many more input and outputs, and the NANO is a condensed version of the UNO. The hardware and software is “open source.” That is the information on what goes into them is freely available and openly shared. The technology is no secret, and so many different manufacturers are out there including SparkFun and Elegoo. The software language is a combination of “C” and “C++” programming languages which are very powerful, but can be used at the learning end, to do a lot quite simply. Sharing and adapting others programmes or “sketches” is common, and a good way to learn.

The Nano is not much bigger than an old style memory stick, (+-3/4” x 1 3/4”) with 14 digital input/output pins, runs at 5 volts but can take power inputs at 6 - 20v, a micro USB socket and strangely 8 *analogue* input pins! (On essentially a digital processor!)

The UNO R3 is about the size of a credit card, has 14 digital I/O, also 5v operating voltage, but an external power jack plug socket, and printer style USB socket, but only 6 analogue input pins.

The MEGA (2560 R3 or ADK) is larger than the UNO has 54 digital I/O pins, 16 analogue input pins, and much more processing power. The ADK can interface with android phones.

Programming the Arduino

There are some example “sketches” showing how I worked the following theories, along with a brief description of what each line of the “programming code” is doing. Alan has suggested that these will be put onto the club website, for perusal and use by those who are interested!

The Arduino programmes or “sketches,” as they are commonly known, are developed on an “APP,” called the Arduino IDE (Integrated Development Environment,) that runs on Windows or MAC computers. Here you can write, test and upload “sketches.” There are many libraries of other “sketches” available from Arduino, Elegoo, or even freelancer software writers on the internet. It can also be worked on Linux, but I understand that can be more fun.

With the “APP” open you can type away to your hearts content. Getting useful “sketches” means you need to follow some conventions, of the C or C++ programming languages, as suitable to the Arduino. There is a good ‘*Arduino for Dummies*’ book, which explains a lot.

The “sketches” are usually broken to 3 sections. 1st is where the “variables” or memory boxes, or pigeon holes, are declared. 2nd is where the setup or booting instructions are set, which only runs once, at power up or after a reset. The 3rd part is the bit that runs the sketch again and again, till something goes wrong, or when powering down.

Having written or modified your “sketch,” connecting the USB lead to the Arduino, and uploading to it, the “sketch” runs right away. If it is all connected up to the external components, then the lights and buzzers should be working, as programmed!

Draft plan - for lighting controls

- How do we get a signal out of the receiver and into the Arduino
- Can we interpret this signal, correctly and repeatedly
- How do we select which set/scenario we want
- How do we define a set of LED's/outputs
- How do we switch on a set of LED's
- Do we need to also switch off LED's not required
- How do we get a signal out of the Arduino

I have 3 versions of the Arduino Nano, for my 3 different boats:-

1. Arduino Nano with "RC Connection to Arduino," a 2 switch link feeding the 10 channel sequencer, for the "*Hecht*"
2. Arduino Nano with "RC Connection to Arduino + RichTugLights" for the individual light control for the "*Richardson*" tug.
3. Arduino Nano with "RC Connection to Arduino + AzizTugLights" for the lighting and radar controls for the "*Aziz*" anchor handling tug.

1. For "*Hecht*"

To make the Nano work as 2 switches when connected to a RC receiver, and output 2 independent 'switch' signals to a 10 channel sequencer, we only need to connect :-

- a servo lead onto - ground pin 4 (GND), signal pin 8 (D5)
- 6 - 20v supply to - ground pin 29 (GND), positive to pin 30 (VIN) (7 to 12v is optimal.)
- switch leads to - SW1 positive pin 15 (D12), SW2 positive pin 16 (D13) and common ground from SW1 & 2 to either of the pin 4 or 29 (GND) which connect to the "10 channel sequencer board."

The programme or "sketch" is loaded from a Windows or MAC PC, using the USB connection.

2. Arduino for the "*Richardson*" tug

The link to the RC receiver is the same as the switch version, but here the Arduino Nano is programmed to sequence internally and output an 'ON' or 'OFF' signal to each LED directly.

3. Arduino for the "*AZIZ*"

A variation I have made is that used for the AZIZ where there are over 20 LED's and 2 radars. These can be grouped into 7 stages. They are:-

- All off
- All on
- Underway, i.e. navigating with radar
- Towing
- Anchored
- Restricted operations ie divers or anchor handling, but not making way
- Restricted operations but underway.

Some lights need to be on in several scenarios, like the port and starboard navigation lights, which are on when underway, but not when at anchor.

So I could collect bunches of LED's together, so that all in a group would go on together. Such a group is the 2 fore-deck, 2 rear-deck and 6 bulkhead walkway lights.

Now we have a plan for the "matrix" of what goes on in what scenario. This forms a matrix of 6 scenarios and 9 groups.

There is a 40mA limit for an Arduino output pin, and a max total load of 200mA, so by counting up each bulb, and radar motor, in a group, based on a maximum of 20mA per LED, we can determine the need for LED drivers and ballast resistors. The bulkhead walkway lights don't need to be bright, so they were paired in series with a 330Ω resistor, so taking a lower current through each bulb. I wanted the spot lights to be as bright as possible, and based on a 7.2v supply, and 20mA load, then chose a 220Ω resistor per spot. All 3 spot lights then would go on together, taking 60mA, so a transistor driver amplifier is connected between the Arduino output pin and the spot light group. Altogether the estimated current load from all LED's and the 2 radar motors came to about 260mA. Several transistor driver's would be needed.

The lighting requirements are referenced from the "Victorian Recreational Boating Safety Handbook." P126 - 132

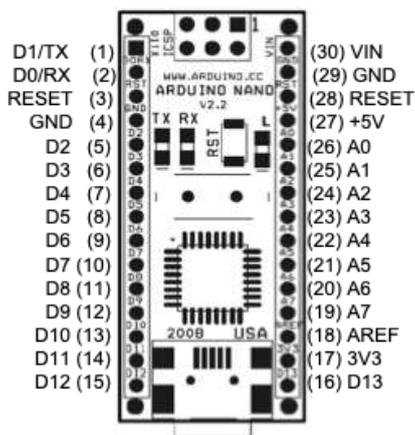
Finally

To quote the Arduino book, “the capabilities are only limited by your own imagination.” The Arduino is only a small part of the range of control systems, but with a huge potential. It is not to be feared, as after all we are only controlling boats, and often at not very high speeds. So being adventurous is often rewarding.

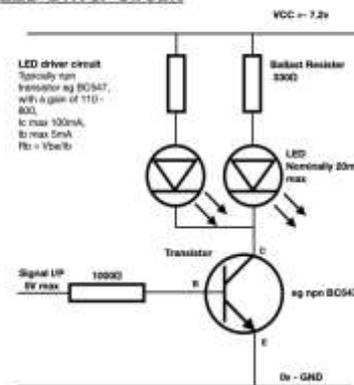
I am happy and open to receiving feedback, advise, corrections, questions and comments. I do not claim to be an expert, and always keen to learn. So please do come back to me at the pond-side or by email on these points.

The current 2019 internet prices for Nano’s is in the range of £2 to £10. Original badged Arduino Nano’s may be more expensive, @ £20.

Arduino Nano Pin Layout



LED Driver Circuit



Editors Comment: I would like to especially thank Chris for this article and if you didn't think it was too heavy going and you have a thirst for knowledge we will place on our Club webpage a comprehensive document compiled by Chris which will also include the actual programming sequences for 3 of his model boats.

Other News:

The Park Bench for the Pond

This is an ongoing discussion with the Basingstoke and Deane Borough Council. There is no simple answer as they still have not acted upon the Management Plan for Eastrop Park which was developed in 2016 following a revision of their earlier plan in 2013. I am sure that with austerity measures that all Councils and local government organisations are having to implement, nothing will be enacted soon – rather later, I believe. Hopefully we will be able to persuade them to do something and allow us to provide this bench which would be welcomed I am sure by many visitors to the park and club members.

Financial News:

Annual Membership fees Due for year 2019 / 2020

Just to remind our members, the Club year runs from the 1st April to 31st March each year and I now have to inform you that the annual membership fees for the 2019 / 2020 year are due, so please can I have your membership subscriptions in just after the 01 April 2019. We are making a small surplus each year and although costs have risen we are still in the black (due to the increased revenue from more memberships) and have therefore decided that we should again hold the membership fees for this coming financial year at £10 for seniors and £5 for juniors under the age of 16 years.

As a matter of interest this past year I received 82% of the Club members' fees by May 2018 which is about the same as the previous year so many thanks to you all and this goes to show that my 'nagging' seems to help in the majority of members paying their fees promptly. Please hand or send your 2019/ 2020 membership fee money to myself and I will sign your membership card or hand your fees to Chairman, Andy Clark at the lake side by putting it in an envelope with your name on the outside and he will pass it to me. You can of course send a cheque to me, made payable to **Basingstoke Model Boat Club** to the following address:-

Alan Spooner
Hathaway, Stratford Road,
Ash Vale, Hants GU12 5PT

We hope that you will continue to support the club in the year ahead and enjoy the benefits of a friendly and expanding membership, complimentary Public Indemnity Insurance and use of the best model boat pond in the area !

New members are most welcome – if you have a friend that may be interested in model boating or joining the club then please let them know all about us, or tell them to have a look at our website to see for themselves - www.basingstokembc.co.uk

2018 / 2019 Accounts

As it is the end of the Club's financial year, I have to make you all aware of our financial position and how we spend your money. Below you will find a simplified version of the Club Account for this past year. If anyone wants to see the actual accounts, receipts, etc. please let me know and I will bring them to the pond for you to view and inspect.

A few facts from the accounts for the financial year 2018 / 2019 :-

1. Membership fee total was 81 made up from 79 Seniors and 2 Juniors.
2. Membership fees collected £800.00 during 2018/2019 year – (79 plus 2 Junior fees).
3. Postage costs for the year £194.88
4. Club and members PI Insurance has been renewed for the same level of cover and cost of £68.80 which is a zero percentage increase over last year's premium.
5. After all current payments have been made we have an approximate surplus of £326.97 on fees received this year over yearly expenditure.

6. We will carry forward a sum of £1614.07 to next year's account plus a donation at 7 below.
7. Apart from membership income we have this year received a donation of £1500 which is ring-fenced for a proposed park bench at Eastrop Pond.
8. Below is a copy of the simplified version of the accounts for the year 2018 /2019

Basingstoke Model Boat
Club Accounts 2018 - 2019

End of Year Account

Item	Income	Cash/Cheque	Expenditure	Cash/Cheque	Date	
Monies at Bank carried forward	£1,287.10					
79 Senior and 2 Junior Member Fees **	£800.00					
Donation for Park Bench	£1,500.00					
Total Monies / Income for year	£3,587.10					
Website Fee (One Com)			-£31.15	Cheque	07.08.18	Cheque to Andy Clarke
Membership Cards			-£18.00	Cheque	14.07.18	Cheque to Alan Spooner
Newsletter Printing Cost (80 Copies @ A5)			-£19.20	Cheque	25.06.18	June 2018 Newsletter
84 2nd Class Stamps @58p (Alan Spooner)			-£48.72	Inc with above		June 2018 Newsletter
3 x 35 A5 Envelopes (Alan Spooner)			£0.00	Inc with above		June 2018 Newsletter
84 2nd Class Stamps @58p (Alan Spooner)			-£48.72	Cheque	25.08.18	September 2018 Newsletter
Newsletter Printing Cost (80 Copies)			-£36.00	Inc with above		September 2018 Newsletter
2 x 50 A5 Envelopes (Alan Spooner)			-£4.00	Inc with above		September 2018 Newsletter
72 2nd Class Stamps @58p (Alan Spooner)			-£41.76	Cheque	20.12.18	December 2018 Newsletter
Newsletter Printing Cost (80 Copies)			-£48.00	Inc with above		December 2018 Newsletter
2 x 50 A5 Envelopes (Alan Spooner)			-£4.00	Inc with above		December 2018 Newsletter
96 2nd Class Stamps @58p (Alan Spooner)			-£55.68	Cheque	26.03.19	March 2019 Newsletter
Newsletter Printing Cost (90 Copies)			-£45.00	Inc with above		March 2019 Newsletter
4 x 25 A5 Envelopes (Alan Spooner)			-£4.00	Inc with above		
PI Insurance			-£68.80	Cheque		March 2019
			-£473.03			
Less Outgoings for 2018/2019	-£473.03					
Overall Monies in Account	£3,114.07					
Cheques to be presented to Bank March 2019	-£173.48					
Monies paid/to be paid into Bank March 2019	£0.00					
Current Monies at Bank end March 2019	£3,287.55					
Total	£3,114.07					

26/03/2019

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BMBC Accounts 2018 - 2019 End of Year Accounts

I trust that you will enjoy reading this Newsletter however, I must close now and just to let you know that there are only **4315** words of wisdom (not all mine thankfully) this time around plus a couple of pictures and lots of interesting facts and figures in this newsletter – I told you that it was great value ! However if you want to send me something for the next edition which will save you from more of my ramblings I will be only too pleased to include it. **Ta,Ta, for now.**

Newsletter by: Alan Spooner – Secretary / Treasurer Basingstoke Model Boat Club

PS To save costs I always have the Newsletter printed in black and white so you miss some of the detail of the photos in colour, etc. – if you would like to see this version in full colour we will as usual place a copy on our BMBC website.