

# MERG West Midlands Area Group (WMAG)

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## January 2023



We were given two presentations in the morning by our Warwick and North Oxford Lead Simon West and MERG Education and Training Officer John Fletcher .

### **Universal Firmware**

### **Ardunio - latest developments**

## October 2022

We were given two presentations in the morning by Andy Cumming and one by David Roberts in the afternoon in our Show and Tell session.

### **My Layout**

Andy give us a presentation of the development of his model railway. How it all started in University days and what it is today. Andy described the successes and pitfalls developing layout in his loft.



### **My solutions**

Andy's second talk focused on the solutions he developed whilst overcoming some of the problems with his layout.

### **MERG Layout Control**

David gave a short presentation on CBUS, EzyBus and PTP-Lite.

Once again we thank Andy & David for the work they have put in for the benefit of the Area Group

## July 2022

We were given two presentaions at our July meeting.

### MERG CANCAB Options

We were delighted to welcome the Warwick and North Oxford Area Group Leader, Simon West, who offered to talk on the MERG CAB options and particularly what will be the new CANCAB2 kit as well as his own slightly larger version. It was a useful opportunity to get further feedback on the new kit version and views on pot operation vs encoder.

### An Introduction to Electrical Measuring and Testing.

Also,in the morning David Roberts presented An Introduction to Electrical Measuring and Testing. This talk provided an introduction to electrical and electronic test equipment as applicable to model railway electronics. The equipment discussed ranged from the simple multi-meter to the more specialist devices such as the logic probe and the oscilloscope. The presentation also covered how a Digital Multi Meter (DMM) is used to make various measurements.



In the afternoon David kindly offered to demonstrate some of the equipment mentioned in his presentation. Simon discussed with members various CANCAB options mentioned in his talk.

And finally we were delighted to welcome back Peter Wilson and the superb cake! Thank you Aileen.

## April 2022

### Train on Tack indicators (TOTIs)



Andy Cumming talked how he experimented with different types of TOTis finally settling on his own dedicated design. Using Design Spark, he explained the stages involved i.e. design schematic, PCB outline and Gerber file production readiness for PCB fabrication.

Andy detailed some of the highs and lows of the process. The talk concluded with a demonstration of his working TOTi. In the photos we see CANPAN Test Panel displaying LEDS i.e., TOTi active and inactive.

### Semaphore experience: a layman's guide over many years.

Tony Chamberlain is well versed in semaphore signalling having been invited into a signal box at an early age (the bug never left him). He has recently stepped down from his position as a signalman, on the Severn Valley Railway. Tony's presentation

commenced by explaining how railway signalling evolved. We were shown examples of various types of signals. Composition, variations in design and physical locations alongside line side images and track layouts were displayed showing some of the complexities the signal faces where safety is the number 1 priority. Perhaps one of the most intriguing images was that view from Severn Valley Railways Bridgenorth South signal box which is the only one in the country where you can see live elephants! Elephant by the Track is a new one on me.

## Demonstrations

David Roberts gave the group a demonstration of three modules he has recently built:

**A DCC Loco identifier.** Originally developed by MERG member Duncan Greenwood. The DCC loco identifier provides functionality that displays a locos identity at a button push. While the decoder identifier may be built using an Arduino Uno and a motor shield this unit uses one of Duncan's PCBs. The output is displayed on a 4-row 20 character Liquid Crystal Display (LCD) via an I2C interface.




**DCC++ EX** This is a complete wireless DCC command station built using an Arduino Mega 2560 module linked to a motor driver shield and a wifi module. This enables you to use either Wi-Fi throttle (iPhone) or Engine driver (android) to operate your layout <https://dcc-ex.com/get-started/index.html> . DCC++EX provides a simple and cost effective entry to DCC control.

**NB1 booster** Based on the MERG Kit. David built his version that also incorporates a RailCom cut out.

**Design Spark.** Andy Cumming followed on his talk from the morning by demonstrating in more detail how to use the software. **4-servo automated gate crossing.** Colin Mitchell demonstrated his model of an automatic gate crossing.

## CANPAN LED & Switch patch boards

 Andy Cumming mentioned at our last meeting that he had some CANPAN LED & Switch patch boards on order from the manufacturer. Andy tells me these have now arrived.

## January 2020

### So what is Arduino



David Roberts gave a presentation to introduce the Arduino in terms of the hardware most commonly used by the Railway Modeller and the Integrated Development Environment (IDE). A look at Shields and other peripherals is included along with a very brief review of the standard interfaces.



## October 2019

John Gowers gave a presentation about the mechanics of a steam engine. How to capture real sounds and apply them to your model railway

He also showed us how to insert sound chips into a loco. This was followed by how you configure the captured sounds to the locos movements and actions.

Here are some of the photos from the day.



## July 2019

### Electrostatic Discharge: What it is and Why it is Important

David Roberts gave a talk on what Electrostatic Discharge is, how it is caused and the damage that it can cause to modern electronic devices and systems. Simple and affordable measures to mitigate the problems were also described.

### The Theory and Practice of a Simple MERG Kit



Some of us assemble kits without knowing very little about the types of components used and why they are important. David's presentation considers a simple MERG kit - the CANACT - looking at the components used and explain why they are chosen and how it all comes together to work.

Here are some images of the day.



## April 2019

What is Arduino and what can it do for railway modellers



David Thomas presented 'A CBUS Sound Player' in which he explained how the project has been inspired by Davy Dick's sound player (See March 2017 journal and the subsequent threads on the Forum). The set up uses three main components: an MP3 player, an Arduino and a MCP2515 CAN Bus. He then went on to explain how he configured the various sounds using FCU and also demonstrated how the whole thing connected together as a CBUS module.

Tony Jackson gave the second talk entitled 'A Magnetic Identity' in which he introduced the use of magnets to obtain the identity of a loco or vehicle (rather than only detecting its presence) to facilitate effective decisions regarding automating aspects of layout operation. Tony explained that by attaching magnets to the base of a loco or vehicle and passing in turn over a linear Hall sensor represented a code that could be configured as a specific identifier. I.e. 6 magnets giving a SSNSNS. Tony then explained how he configured individual locos to establish which is North and then using an Arduino sketch to process the results and display the correct loco or vehicle identifier.

## October 2018

### Wiring and Power supplies for the Railway Modeller

David Roberts gave two talks in the morning.

The first one, focused on **wiring for the railway modeller** and included



- Theoretical aspects of electrical wiring • Design & Implementation of electrical wiring • Examples of wires, tools and terminations

His second talk was **Power Supplies** and explored:

- History • Direct Current (DC) Supplies • Linear Mode Supplies • Switch - mode Supplies
- Sources of Power Supplies • Commercial Devices • Surplus Computer Supplies



## July 2018

Howard Watkins was our keynote speaker.

The theme of our meeting was 'Back to Basics'

*AM - Two talks given by Howard included*

- Theory and practise of Soldering. - Tools and Supplies - Component recognition - Using LEDs

*PM - Practical 'HANDS ON' session included an opportunity to build a track tester.*

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