

**John Murrell**

**Transit of Mercury**  
**3<sup>rd</sup> May 2003**

**The equipment I used to  
observe & time the transit**

# Introduction

- My objective was to try to time the Transit of Mercury – partly for interest but also as a practice for the Transit of Venus.
- However the equipment can also be used for recording & timing occultations of planets & stars by the moon or asteroids

# Constraints

- The system had to be small enough to be transportable as Sunrise was not visible from my home.

# Equipment – Telescope A Celestron 8 GPS

Used with a Celestron 8”  
Solar Filter for the ToM



# Equipment – Video Camera

## Astrovid StellaCam

This uses the same Sony ExaView chip as some of the Starlight Express Cameras. It produces a video output rather than single pictures but can integrate up to 128 frames. It is not cooled



# Equipment – GPS

This is not a standard Navigation GPS. It is unusual in that it gives a pulse out every second accurate to 1us. In addition to NEMA encoded date time & position.



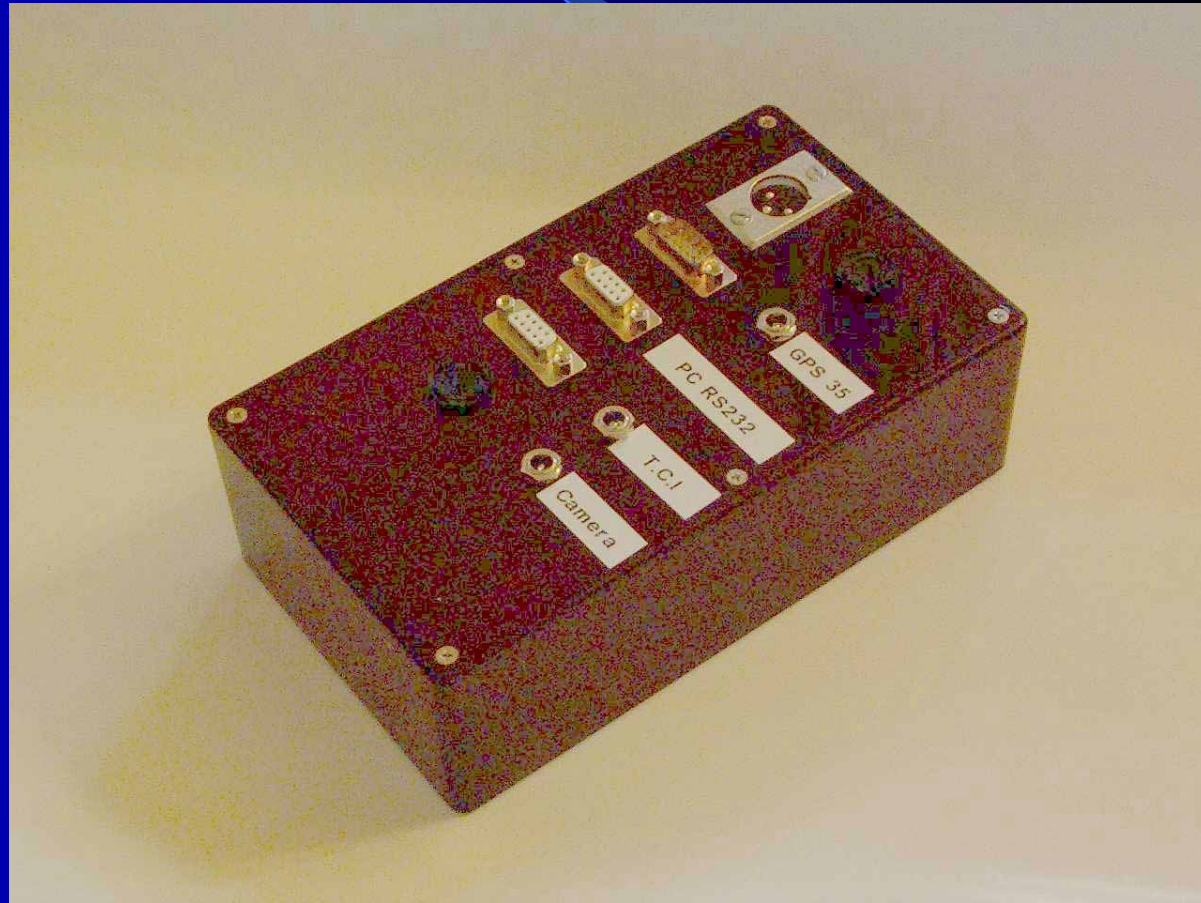
# Equipment – Time Code Inserter

A Commercial Unit  
– used for  
occultation timings



# Equipment – Interface

Home built – connects the units together and distributes the power (12V DC) to the Camera, GPS, Time Code Inserter and the RS232 interface inside the interface



# Equipment – Power Supply

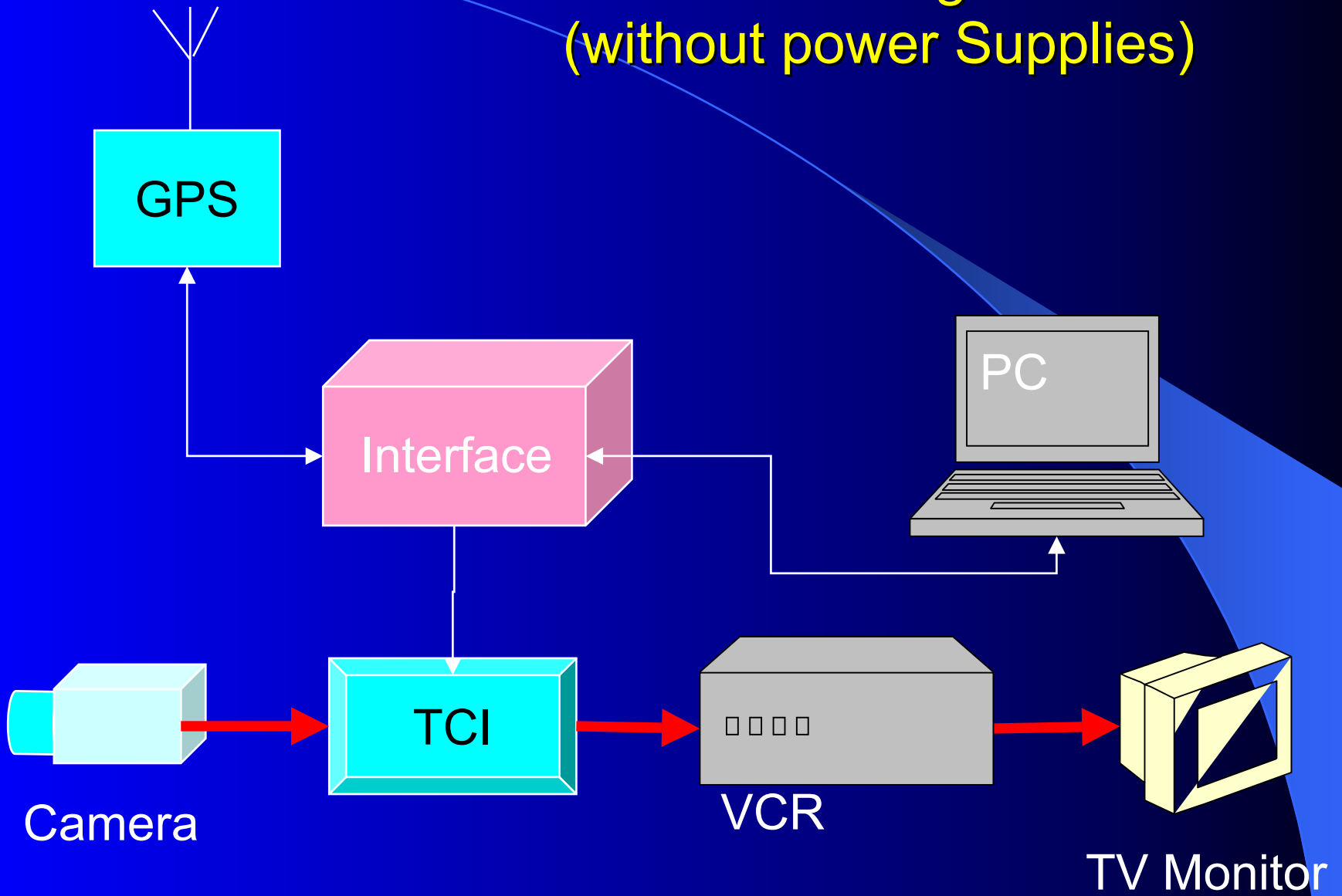
Provides 12V DC power from an 18Ah Battery. Powers the equipment mentioned before plus the Telescope & Dew Remover



# Add

- A Video Recorder
- A Television for focus & framing
- A Large Black Plastic Sheet (To keep the rain off – used as a sunshield to allow me to see the television !
- Plus lots of wire !

# Block Diagram (without power Supplies)



# The final result !



# What I would have changed / could have done better.

- ✓ Work out which quadrant the transit was starting in before 1<sup>st</sup> Contact.
- ✓ Made better notes of events & also the equipment set-up.
- ✓ Recording sound from a fixed & possibly a radio mike would ease finding some events.
- ✓ Find a better way of viewing the TV in daylight
- ✓ Replace the Mains Video recorder & TV with 12 V ones to allow operation away from mains power.