

National Radio Astronomy Observatory

Green Bank, West Virginia

October 8, 1981

To: M. Balister

From: J. Findlay

Subject: Data Collection for 12-m Measuring

12 METER MILLIMETER WAVE TELESCOPE

MEMO No. 84

1. I have now discussed this task with you and I have also worked with the Apple II computer and the ADIOS* interface. As far as I can see, the data system outlined below will meet my needs. (I set these out in a note to you dated September 11.)
 2. See Figure 1. I propose to have the following data inputs to the system:
 - (a) 16 analog channels working in the 0-1 volt range. These come via the multiplexer (MUX) from the 12 depth sensors (4 spare channels). My present plan is to keep these input voltages always above zero, and to use ADIOS A_{in} to read these into the Apple. I have run ADIOS TEST; I plan to make further tests of ADIOS stability.
 - (b) 8 low-precision analog voltage channels (0-5 volts). These allow me 8 temperature sensors, read in via the ADIOS 8-channel multiplexer to B_{in} .
 3. For these 2(a) inputs I need a 16-channel MUX. Both RL and DS seem to prefer making a new MUX rather than modifying the one already built for the 9825A. I should drive this new MUX from the 8-bit ADIOS digital output (exactly as SW drives the attenuator in his detector-law application).
- Since the cost of this MUX is not large, and RL thinks it can be made at Green Bank, please go ahead and build it.
4. Aside from the data stored within the Apple, I get my 12-POINT display along a radius on the CRT and printer. I can program the Apple to give me the analog voltage (from C_{out} or D_{out}) to show the status of a single depth sensor, and present it to the mechanic.
 5. Lastly, I have not looked carefully at the (occasional) need to get data into the IBM-360. But the Apple can speak to a VAX (is this OK?) and surely a VAX can write a tape to the 360.
 6. I plan to set up the whole system (with simulated sensor voltages) in Green Bank so that I can program and test it. So, will electronics please:

* All references to ADIOS are to E.D. Internal Report #212 of April 1981.

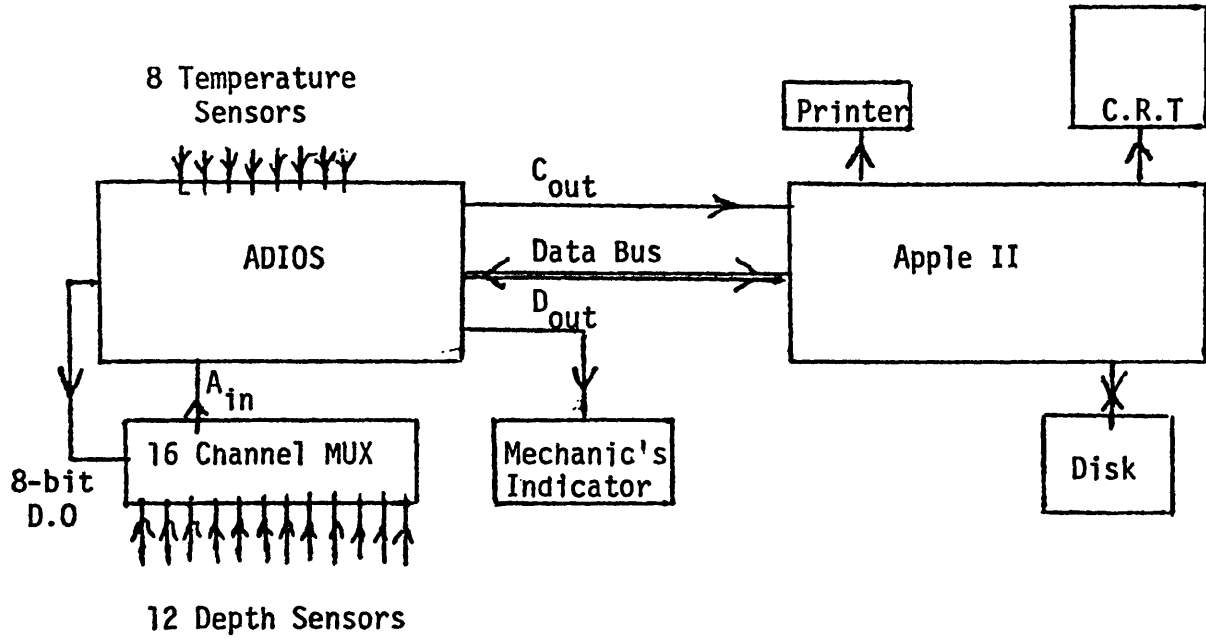
- (a) Set in motion an Apple II purchase. This should include a disk, CRT and printer.
- (b) Supply an ADIOS.
- (c) Build a 16-channel MUX.
- (d) Help with cabling, etc. in Green Bank.

The account is 13141/12141 and the Project No. is 2.913.4. I assume that you can see to it that this is where the money comes from.

- 7. Please review my plans before moving on 6(a) just in case you see a snag. I expect to be using this system until the whole project is completed at Tucson -- maybe a year from now.

JWF/bbs

cc: R. Lacasse
S. Weinreb
D. Schiebel



The Data System based on an Apple II

Figure 1