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Automatic Marking System for Basic Physics Laboratory

Thursday 21 May 2015 08:00 (3 hours)

We have developed a system that can automatically give a score to a student laboratory report. Even the system can be used in general, we aim our work mainly to the basic physics laboratory. We take the advantage of the existing Google doc by designing a cloud document for the students to submit their reports. This can be very convenient since the students can submit their works via any platforms of their smart devices. The reports are kept in the form of spreadsheet, which can be analysed by the macro langauge like VBA or Openoffice.org BASIC. The score is given base on the discrepacy of the results reported by the students and the values from the sensors. We use the single board Raspberry Pi as our workstation to analyse the reports by comparing with the experimental values. As a prototype, we connect our Pi with the camera module to create a motion tracker, which we use to track the motion of objects or reading the dial indicator. By using the free-of-charge cloud document and the tiny, but powerful, Raspberry Pi workstation, our system is not so pricely and very suitable for the large laboratory classes. We expect that this should help the instructor of the basic laboratory in their tedious but very importance jobs. Our system should also reduce the bias from the different instructors and gives a fair check to the student reports

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