



Phase 1 – Autonomous Challenge Scoring

Phase 1 – DEXI-5 and DEXI-10 Route Scoring	Points	Maximum Points
DEXI-5 manual April Tag and correct LED display, at the last April Tag (ID 6), lands	1 (per Checkpoint)	7
DEXI-5 completes April Tag checkpoint hands-off, shows correct LED color, and at the last April Tag (ID 6), lands	3 (per Checkpoint)	21
DEXI-5 completes full route hands off - no intervention	15	15
DEXI-10 manual April Tag and correct LED display, at the last April Tag (ID 6), lands	1 (per Checkpoint)	7
DEXI-10 completes April Tag checkpoint hands-off, shows correct LED color, and at the last April Tag (ID 6), lands	3 (per Checkpoint)	21
DEXI-10 completes full route hands off - no intervention	15	15
TOTAL MAX POINTS		72

Phase 1 – Sphero & RVR Route Scoring	Points	Maximum Points
Green Sphero manually completes route action	1 (per Action)	9
Green Sphero completes route action autonomous/hands off	3 (per Action)	27
Green Sphero full route autonomy bonus, no intervention, hands off	7	7
Red Sphero manually completes route action	1 (per Action)	6



Red Sphero completes route action autonomous/hands off	3 (per Action)	18
Red Sphero full route autonomy bonus, no intervention, hands off	6	6
Blue Sphero manually completes route action	1 (per Action)	9
Blue Sphero completes route action autonomous/hands off	3 (per Action)	27
Blue Sphero full route autonomy bonus, no intervention, hands off	7	7
RVR manually completes route action	1 (per Action)	6
RVR completes route action autonomous/hands off	3 (per Action)	18
RVR full route autonomy bonus, no intervention, hands off	7	7
TOTAL MAX POINTS		117
PHASE 1 TOTAL MAX POINTS		189

Phase 2 – Airfield Reclamation Scoring

Phase 2 – Mission 1 – Hangar Hustle Scoring	Points	Maximum Points
DEXI identifies an active Hangar April Tag and activates the correct LED Signal	3 (per Active Hangar)	6
Correct color Sphero travels to the matching active Hangar, activates switch before Pallet is engaged for removal	3 (per Sphero)	6
Active Pallet is pulled fully out of the Hangar	2 (per Pallet)	4
DEXI identifies a Barrel Image and activates the correct LED Signal	2 (per Image)	16
Barrel or Hay Bale is removed from the Pallet	1 (per Object)	10
TOTAL MAX POINTS		42

Phase 2 – Mission 2 – Seeding Sprint Scoring	Points	Maximum Points
Bridge Coaster is moved fully off the Bridge	2 (per Bridge Coaster)	8
DEXI identifies correct Bridge Image and activates the correct LED Signal	2 (per Cultivated Row)	6
Correct color Sphero travels all the way down the correct Cultivated Row near the Bridge to validate the row	3 (per Sphero)	9
Correct color Seed lands in correct Cultivated Row	1 (per Seed)	21
Correct color Seed lands alone in section of correct row	1 (per Seed)	21
TOTAL MAX POINTS		65



Phase 2 – Mission 3 – Barn Blitz Scoring	Points	Maximum Points
DEXI-5 or DEXI-10 identifies Barn Image and activates the correct LED Signal	3 (per Barn)	6
Correct color Sphero travels to matching Barn, activates switch to verify unloading location	3 (per Sphero)	6
Option 1: Correct Barrel or Hay Bale is delivered in through the matching Barn Entrance	2 (per Object)	12
Option 2: Correct Barrel or Hay Bale is deposited through the Top Opening of the matching Barn	5 (per Object)	30
TOTAL MAX POINTS		42

Phase 2 – Mission 4 – Toxic Transfer Scoring	Points	Maximum Points
DEXI identifies Freight Car Image and activates the correct LED Signal	3 (per Freight Car)	6
Any Sphero travels to and contacts an active Freight Car to verify unloading location	3 (per Sphero)	6
Option 1: Correct Gasoline or Toxic Fluid Barrel is pushed/placed alongside the matching Freight Car	2 (per Barrel)	8
Option 2: Correct Gasoline Barrel or Toxic Fluid Barrel is delivered inside the matching Freight Car	5 (per Barrel)	20
Connected Freight Cars are moved fully into Toxic Storage	2	2
Hitch is used to connect to Freight Cars and transport them fully into Toxic Storage	5	5

Correct Barrel remains inside matching Freight Cars while transported and until fully inside Toxic Storage	4 (per Barrel)	16
Correct Gasoline or Toxic Fluid Barrel alongside matching Freight Car while both are fully inside Toxic Storage	2 (per Barrel)	8
Correct Gasoline or Toxic Fluid Barrel is inside correct Freight Car while the Freight Cars are fully inside Toxic Storage	4 (per Barrel)	16
TOTAL MAX POINTS		71
PHASE 2 TOTAL MAX POINTS		220

Phase 3 – Mission Wrap-Up Scoring

Phase 3 – Mission Wrap-Up Scoring	Points	Maximum Points
RVR parked fully under the roof of any Hangar	3	3
Green/Blue/Red Sphero parked in Barn without another Sphero in it	2 (per Sphero)	6
DEXI-5 landed and parked on designated Tower Helipad	3	3
DEXI-10 landed and parked on designated Tower Helipad	3	3
TOTAL MAX POINTS		15

GRAND TOTAL = 424

Appendix B – Presentation Rubric

Team Number: _____ Judge Name: _____	Score
Design Approach and Process	
Comments:	/50
Demonstrated Engineering Skills	
Comments:	/50
Game Winning Strategy	
Comments:	/50
Lessons Learned	
Comments:	/50
Teamwork, Communication, & Team Spirit	
Comments:	/50
Quality of Materials and Presentation (including coordinated apparel)	
Comments:	/50
Demonstrated Effort and Research	
Comments:	/50
Quality and Content of Engineering Notebook	
Comments:	/100
Overall Total:	
/450	